

THE
SOUTHERN AGRICULTURIST.

MAY, 1836.

PART I.

ORIGINAL COMMUNICATION.

*On the Conduct and Management of Overseers, Driver, and
Slave.*

Santee, April 3, 1836.

Mr. Editor,—I received your letter a month since, requesting me to give you “my system in the management of Mr. — plantation.” Your letter I would have answered before this; but being now somewhat advanced in age, and not exactly in writing order, I deferred doing so until the present time. However, since you think an account of my system of management might benefit overseers generally, I shall comply, even at this late hour; for I do assure you, that nothing gives me greater pleasure, than to have it in my power to say or do any thing, however little, that will improve overseers in their regulation and management. Having been an overseer myself for twenty years, I think, I ought to know, how important it is to them to be well informed as to their duties. But, Mr. Editor, this is not acting like a good overseer; I am not writing to the point in question; so without any more preface, I shall give you as the best outline of my system, an account of what you desire.

It was fifteen years ago, that I was first employed to overlook, and superintend the plantation of Mr. ——. As a wise and conscientious man, Mr. — required of me testimonials as to honesty and activity of character. When I satisfied him as to these, he then, in a very

explicit manner, told me, what would be required of me. Among an hundred other things, he impressed upon my mind, that I was to be his representative; to regulate his slaves in their moral and general conduct; to sustain my employer's reputation, among merchants for the quality of his productions; and to make his plantation a pattern of regularity and order to the neighbourhood around. When Mr. ——— began to talk in this way, I at first thought he was quizzing me. I had before been an overseer, but had never been spoken to in this solemn sort of manner. With other planters, where I showed that I was honest and active, that was enough—I was directed where I was to live, and my authority as overseer commenced, for evil or for good, for one year from that date. I say that when Mr. ——— first began to lecture me as to what he would expect of me, I thought him quizzing; but I soon changed my mind. I soon discovered that he meant every word he said; and moreover meant, that it should be attentively listened to, and executed. He told me that there was no duty more difficult than the one I was about to assume; accordingly, said he, we had better understand one another explicitly. He then recounted every thing he would expect of me; how I should demean myself; how I should manage his slaves; nothing was omitted which he could think of.

Nor was Mr. ——— satisfied here. Most of my duties he had committed to writing, and I was required to keep them as a constant guide to me in the management of his plantation. Whether they were excellent or not, shall appear, when I speak of how I managed his estate; for let me assure you, Mr. Editor, that if I have been successful as an overseer, I attribute all, to the advice of my employer.

When I commenced my duties as overseer with Mr. ———, I firmly impressed with the belief, that "knowledge is power." I felt that whether applied to the Sciences, or to the pursuits in which I was embarked, that information of every kind was useful to me. Without being obtrusive, therefore, I determined to pick up from every planter and overseer, what I could learn as to my business. I found that the most ignorant man could teach me something, which I had not known before. What I learned, I always submitted to my employer, when I could do so with convenience. Sometimes he

would dissent from what I proposed; and then I was never ashamed to argue the point with him, and show him the reasons why I thought myself correct. I pursued the same plan with the driver. Whatever I was to do, I always consulted him about. This gave him confidence and responsibility in himself; and character in the eyes of those he had to superintend.

Speaking of the driver, brings me to notice my management of him more particularly. I always required of him, that he should dress himself better than the other negroes. This caused him to maintain a pride of character before them, which was highly beneficial. Indeed, I constantly endeavoured, to do nothing which would cause them to lose their respect for him. With this view, I made it a rule never to scold or lecture my driver before the other negroes for any inadvertence or fault. If he did any thing which was out of the way, I took him by himself and lectured him severely. If the fault was of a flagrant nature, as was once the case with him, I publicly flogged him before the other negroes, and disgraced him by appointing another in his place. I would never listen to every tale that the negroes might have against the driver; but whenever they could urge any thing which seemed plausible or correct, I would consent to have him tried. At these trials, I would preside as umpire—would listen to the evidence for and against, and my decision always awarded a punishment of some kind to the guilty party—to the driver, if guilty, or to the accusers if they did not make good their charges. Persons might suppose that the fear of not making out their case, would prevent the negroes from accusing when really they had been injured; but I never found a case of the kind.

Every night it was my driver's business to inquire of me what I would have done the next day. Although, he frequently had his duties allotted to him, for a week ahead, he was nevertheless required to do this regularly every evening. He was also at the same time required to report the work of the day ended. It will be asked what was the necessity of all this, when I superintended every thing that was done myself? I answer; it gave the driver a habit of regularity, and prepared him for a proper discharge of his duties, should I be sick. The more the driver is kept aloof from the negroes, the better.

The truth is, he cannot maintain too much pride in his conduct towards them. Once let them believe that they are his equals, and all control is lost.

I have said so much about the driver, that I have little room to speak of the negroes. Their proper management constitutes the chief success of the planter. If he has not a proper control of them, he had much better give up planting; for as sure as he continues they will ruin him.

Having laid down rules for the regulation of your plantation, the first consideration is the study of the character of your negroes. This will not take you long to do; in one month the full character of every slave you superintend might be learnt. For the breach of every rule, *certainly of punishment* is every thing. If a negro is permitted to go once unpunished for a fault, he will at any time afterwards do the same and risk being flogged. I have always discovered that where the overseer is *positive*, that the negroes are better disciplined, more mildly treated, and consequently more happy; once, however, a negro has been punished, the fault should be overlooked, and his spirits should not be broken down by continually reminding him of his past misconduct. Not observing this rule, has very often ruined some of the very best negroes. I have frequently met with negroes, whom the whip would ruin, with whom a little flattery could do every thing. I will state an instance of the kind. Ten years ago, I bought at auction in Charleston a stubborn, ill looking fellow; sold as runaway. Upon examination, I found that he had the marks of having been repeatedly whipped. I asked the fellow the reason of this, he said it was because he could not do his work. I was convinced that Ben, (for that was his name) had not been properly managed. I accordingly purchased him at a reduced price; took him home, and put him to work by the side of some of my best workers. I pointed out what I would require him; and in a flattering way, observed to the other fellows, that I was now going to give them a push. "Now," said I, "Ben, I will expect you to do your best; keep close to those fellows, and if you follow them up close, you may feel proud of yourself." He seemed pleased at my remark, said he would, and commenced as if he intended to do his best. I left Ben to himself, and in a few hours after returned to where he was working: he was getting

on exceedingly well, for which I complimented him. It was in this manner that I urged him on throughout his day's work. That evening he finished his task, did it well, and went home much pleased with himself. This was the first step towards the reformation of Ben. By following up my treatment, I so entirely reclaimed him in a few months; that from being a runaway and rogue, I made him one of my primest and truest negroes.

Order should be strictly maintained among negroes. By this, I mean order, in their occupations and duties. Once or twice in the month, I made it my business to visit each negro house; I examined every thing therein; saw that the negroes permitted no dirt or filth to be collected about them, and as invariably punished them where I found they had done so, as if they had omitted to do their day's work. This plan of supervising your negro houses, works wonderful effects upon your plantation. It keeps your negroes cleanly and healthy; and prevents the concealment of all kind of roguery. If every overseer would follow this plan, I am convinced that there would be little use for patrol laws.

I not only attended to the negroes in the cleanliness of their houses, but I also, enjoined the strictest observance as to the cleanliness of their dress. If negroes are left to themselves, they will, general speaking, pay little attention to their dress. I have seen them on some plantations almost naked from suffering their clothes to remain unmended. This can easily be remedied. Make it a rule to oblige every negro, to have his clothes mended as soon as you discover them broken; and if your force be large, have some old person to serve as "general mender" to the plantation, and you will never have to insult the eye with a set of ragged negroes.

Next, to making your negroes attend to the orderly arrangement of their houses, and dress, you should oblige them to attend also to that of every thing about the plantation. I obliged every negro on the plantation to superintend every thing in its place that he finds displaced. If, for instance, a negro passes a fence that has been put down; if a rail has been thrown from its place, it is his business to replace it, or to inform the proper person whose business it is to do so. This rule I followed when I was a poor man, working at a salary of five hundred dollars a year; now that I can drive my chair, I stick to the rule still. I

believe that a great portion of my success in life depended upon this simple rule, which was first taught me by my employer. I was riding out with him, a short time after coming to oversee for him, he happened to pass by a fence where one of the bars had been left down, by which means the cattle had got into the oats patch. His coachman had passed by the fence in that condition once before that morning. Mr. ———, upon his return home had his coachman punished. It was in vain that he said in extenuation of his conduct, that he had not observed the bar; it should have been observed by him, as well as by his master; so he was punished. Though I lived fifteen years for Mr. ———, I never knew his coachman to be punished for the same thing a second time. Some persons might have thought Mr. ——— severe for punishing a fault so apparently trifling; but as I have before observed, it is by the punishment of small faults that large ones are prevented.

Negroes should in no instance be permitted to *trade*, except with their masters. By permitting them to leave the plantation with the view of selling and buying, more is lost by the owner than he is generally aware of. Let each planter have upon his place, a store of such articles as his slaves usually purchase elsewhere. These can be dealt out to them for their corn and such things as they have to sell. By so doing, your negroes will be better and more cheaply provided; and be put out of the way of the temptation to roguery.*

I hold out every inducement to the negroes to marry among themselves on the plantation; thus giving them no cause for leaving their homes. Whenever my employer could do so, he always purchased the families of any negro he might own, assigning the reason I have already given.

But, Mr. Editor, I must conclude, I have already trespassed upon your patience too long. You will accept my crude reflections, as they are intended, for the benefit of overseers, who have as I have had, once to commence. Should you desire to have from me, more particularity, be pleased to interrogate me, as to the points upon which

* Upon the plantation of Winborn Lawton, Esq. of James-Island, this plan has been adopted. The consequence is, Mr. Lawton's negroes are considered as among the most orderly and best disciplined on the Island.—*Editor*.

you desire information; and I shall endeavour to answer your queries.

Not wishing to intrude my humble name upon the public, I subscribe myself with great respect,

AN OVERSEER.

Irish Potatoes.

Charleston, April 5, 1836.

Mr. Editor,—I was informed by an old planter, a few years since, of an experiment which he made in the cultivation of the Irish potato. It was this. He planted his seed early in March in beds four feet apart. As soon as the potatoes came up, he gave them one hoeing to clean them of grass. He then scattered pine trash in the alleys, so as to fill them entirely up. His reason for doing this, was, *first*; to afford moisture to the bed, and to keep down the grass; *secondly*, to manure the land for the next year's crop. The result was, as he expected. The potatoes when dug in, yielded an immense crop; they were large and mealy, and were in every other respect better than any others he had before planted.

While digging in the crop, the dirt from the beds were thrown upon the pine-trash in the alleys, which yielded an excellent manure for the next year.

Now, *Mr. Editor*, it appears to me, that the excellence of this plan of cultivating potatoes, over the usual mode is obvious. Two objects are *at once* obtained. You do away the necessity of hoeing your potatoes, which in most cases is an injury; and while doing so, the same labour which you would expend in removing the grass, &c., is applied in manuring for the next year.

I have heard some persons say, that the Irish potatoes grow best, if their tops be cut off after reaching a foot in height. Will your experience permit you to say whether this opinion be true or not; if you cannot do so, perhaps some of your correspondents may.

I remain,

A READER.

We are happy in being able to answer the query of "A Reader."

Last season we gave a fair experiment to the topping of potatoes. We planted in our garden a very large spot of them. As soon as the potatoes sprouted a half foot above the ground, we cut the tops of the plants, on every other bed. This we continued to do, until we gathered in our little crop. Wherever the potatoes were cropped, they were decidedly larger and more mealy than the others.

A friend of ours, who never fails in raising fine potatoes, tells us, that he never suffers the tops to remain uncut. He feeds his cows with the vines, which are excellent in giving a richness to the milk. In Ireland, potato tops are cut several times before the roots mature, and sold for making potash.—*Editor.*

Salt Marsh as Fodder.

James Island, April 6, 1836.

Mr. Editor,—I have frequently wondered that our planters do not give more attention, to curing salt-marsh as a fodder for their horses and cattle. This is the more to be wondered at, when we reflect that hay is now selling at \$2 per hundred. When will we begin to supply ourselves with our own provisions? When will we become independent of the Northern markets? Is it because we have not the means at hand? I shall show you, Sir, that in one article at least, we have the means of supplying ourselves; and that too, not only well, but cheaply. I mean in the article of salt marsh as a substitute for hay.

For six or seven years back, I have been in the habit of curing salt-marsh as fodder for my horses and cattle. I find that they prefer it when properly cured, to any other fodder which you can give them. It must, however, be *properly* cured, or, like all other fodder, your creatures will refuse it. This (April) and the two coming months, (May and June,) is the time for cutting the marsh. It is then, most tender, possesses most juice, and will dry best. During these months, I keep a boy or two continually cutting. One boy will cut one or two boat loads per day; as the tide suits. As soon as cut, I have it well washed in the salt water; spread it out a

day to dry in the sun; and immediately after, pile it up in stacks to keep. No apprehension need be entertained of its heating or moulding; as the salt in the marsh prevents every thing of the kind.

Marsh thus cured, will keep during the whole year; and in the winter will afford a fodder that horses and cattle will prefer to all others. Its advantages are many. Cattle that feed upon it, will seldom, if ever, be troubled with worms or cholic; since the salt in the marsh totally destroys the worms, and prevents the cholic. When given green to your horses in the spring, it will at first act upon them as a gentle purgative, but after feeding with it for a day or two, this effect will entirely wear away, and it will then prove one of the most rapid fatteners.

Few planters plant corn enough to afford them fodder for the cattle throughout the entire year. Let those who reside in the vicinity of marsh, cure this article as I have directed; and if they will take the word of one who has tried it, they will never want fodder, nor have to eat poor cattle.

TRY IT.

We can, ourselves, testify as to the excellence of salt marsh, as a fodder for horses and cattle. The farmers at the North, hold it in such repute, that those of the interior, send their carts fifty and a hundred miles to procure it from the sea-coast. Independent of the rich nutritive matter, which the marsh contains, they highly value it for the salt, which it affords their cattle. With them an acre or two of salt meadow, is of no little value. A gentleman from Maine, in riding over our place with us, first suggested our curing this article. He assured us that it was both more tender and nutritive than the salt meadow grass put up for winter provender in his State. This year we shall follow his advice to a larger extent.—*Editor.*

Cholic in Horses.

Charleston, April 12, 1836.

Mr. Editor,—I herein send you a receipt for curing the cholic in horses. If you think it worthy a place in your journal, you will perhaps confer a service on some of your readers, by giving it publicity.

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A few weeks ago, I was travelling into the country. Before I had progressed many miles, my horse showed evidently that he was labouring under cholic. He became quite loose in the bowels, swelled, and was in great agony. Fortunately I met with a wagoner, whose kindness relieved my beast from his illness, and myself from, perhaps, a long walk. His remedy consisted in tying upon the horse's bit, a piece of *tobacco*. This being done, he told me I could proceed upon my journey; assured me, that the horse would get well before I got one mile, and that he would not be troubled again, while the tobacco remained on the bit. I did as he directed, and to my perfect astonishment, my horse became relieved as soon as he swallowed the saliva created from the tobacco.

I am, your's, Mr. Editor,

I. B. S.

We think our correspondent must be somewhat mistaken, as to the effects of the tobacco. We are of opinion, that the tobacco used upon the bit, is a preventive of cholic, in its incipient state; but once the cholic has been violent upon the animal, we are confident, that a more active remedy must be used. In violent stages of cholic, we have seen tobacco tea given with excellent effect.

We have heard of many receipts for this disease, with which horses are so frequently plagued; but we venture to assert, that none will be found more simple and sure, than the following.

Take of laudanum 6 or 7 table spoons full—of mustard the larger portion of a bottle—mix these in a pint of whiskey, or water, and give the mixture in a horn or bottle to the horse. We have seen this dose applied to horses which were so far gone with cholic, as to be perfectly cold and stiff. In one instance, when the horse could not swallow, the mixture was administered with an injection pipe, and the horse recovered in an hour afterwards.

When the severe pain has been alleviated, a dose of oil should be given. One pint will answer as a dose.—
Editor.

Essay on Agriculture.

Charleston, April 26. 1836.

Mr. Editor,—You will oblige many of your readers, by copying into your valuable journal, the following essay, from the Norfolk Herald, on Agriculture.

Your's, &c.

PHILO-AGRICOLA.

We have read the essay, which our correspondent sends us, and though it is not our custom, to insert selections, in this part of our work, we trust that our readers will not complain of the deviation in this instance.—
Editor.

[From the Norfolk Herald.]

Essay on Agriculture.—Science and Art, which are designed by nature as twin sisters, for the mutual benefit and support of each other, have been from time immemorial alienated and estranged by the artifices of designing men; but, I thank heaven, they are becoming happily reconciled. Science tired of spinning hypothetical cobwebs in secret, has at length found out that she is indebted to her long despised sister, not only for the comforts of life, but even for the instruments with which she makes her discoveries; and Art, finding herself no longer insulted, instead of groping in darkness as heretofore, is now making rapid advances, in the protection of her labours, as she pursues them by the light of Science. Every branch of the useful arts is now assuming an improved character, as it begins to be conducted upon scientific principles; but in no branch whatever is the knowledge of these principles of more importance than in Agriculture.

The Art of Husbandry is unquestionably the most ancient of all. Scripture informs us, that Adam was sent from the garden of Eden to labour or cultivate the ground. From the earliest accounts of the nations of the East, Agriculture was carried on by them to considerable perfection.

As soon as the descendants of Abraham were settled in Palestine, they became husbandmen, from the highest to the lowest; high birth and rank made in this no dis-

tion; for Agriculture was considered the most honourable of all employments. Of this the history of Gideon, of Saul, of David, furnishes illustrious examples. The Chaldeans, who inhabited the country where Agriculture had its birth, carried that art to a high pitch of improvement. The Egyptians, from the fertility of their soil, enriched by the overflowings of the Nile, raised vast quantities of grapes, for the use of other nations, as well as for their own wants. In the purest days of the Roman Republic, to be called an industrious husbandman, was the highest encomium that could be bestowed on an illustrious character—as witness Cincinnatus, who was taken from the plough to command the Roman legions. Honourable mention could be made of Cato, of Phocian and others. It was the practice among the ancient Persians, for their Kings once in every month, to lay aside their grandeur, and eat with husbandmen; the precepts of their religion included the practice of their agriculture; it was even a maxim in their sacred books, that he who sowed their earth with diligence and care, acquired a greater degree of religious merit, than by the repetition of ten thousand prayers. The ceremonious respect bestowed on Agriculture, in China, is well known: there the husbandman enjoys many great privileges, while the tradesman and mechanic are held in comparatively little esteem. In the beginning of the Spring of every year, the Emperor in person, attended by the chief men of the State, repairs to a field prepared for the purpose, and there with his own hands hold the plough, and turns up several furrows, the Princess and Nobles do the same after him, according to their rank; then the Emperor sows the seeds of wheat, rice, millet, and beans, and covers them over with the soil. Even in England, to this day, they have ploughing matches, and the honour of bearing off the trifling prize of a silver cup is boasted of from father to son.

The prejudices of farmers against all innovations upon their established habits, are as old as Agriculture itself. In the dark ages of superstition, a man who by any improved method, continued to grow larger crops than his fellows, was supposed to use supernatural means; and if he escaped prosecution as a wizard, was at least shrewdly suspected of dealing with a power, whom his pious neighbours carefully avoided. Why should the light of Science

be hidden from the husbandman, and applied to the more learned professions, when Agriculture requires its aid, and has more imperative claims upon the sublime mystery, than all the professions besides? Farmers have to make more use of the powers and laws of nature, than other professions: they have to use the elements for tools; they are, indeed, practical chemists, for they have to make use of the various substances which nature has given them; they have to combine, separate, modify and change both simples and compounds; their farm is at one and the same time a laboratory and a workshop, and in proportion as they operate in such a way, as to afford the several elements, of which the substances are composed, and upon which they are operating to disunite and to combine, will be their success; they depend upon the vegetable world for a subsistence; their labour is upon and among the plants on the earth; they have to change the state of it, and adapt it to the seasons and the crops; they have to "discern the face on the sky," and watch the changes of the weather, and regulate their movements accordingly; they must use tools or implements of labour; they must take advantage of the principles of mechanics to practical life; and in this country they have to contribute largely to the support and formation of the government, for upon them depends the election of rulers and law-makers; they have to administer to the sickness of animals under their charge, heal wounds and restore health. Indeed so wide is the field of his labours, so numerous the subjects with which he is connected, so various the operations which he has to perform, we verily think the farmer ought to be the most learned man upon earth, for his whole business of life, is a series of illustrations of the principles of Science, and his whole establishment is a scientific laboratory.

You will not object to giving learning to the man who labours for our spiritual good—to the lawyer who settles our temporal disputes, or to the physician who heals our maladies; then why in the name of common sense is it not equally necessary for the farmer? I would not dispute with either of these professions for the monopoly of the dead languages, but for the ever-living Sciences, for mathematics, mechanics, chemistry, botany, zoology, and their subordinate branches, I contend, that where a clergyman, or lawyer, has one professional occasion for their

use, a farmer has fifty. By botany and chemistry, he learns the physiology of his plants, the nourishment and treatment they require, and by analysing the soil, he discerns what is necessary to maintain and increase its fertility. Zoology and natural history teach him the characters and constitution of his animals, and mechanics the structure and use of his instruments. There is no doubt but those who have no faith in book farming will smile at the idea of a college learned farmer; but how many things have been smiled at as ridiculous at one period, and at a subsequent time hailed and applauded as wonderful improvement? The clergyman, lawyer, and doctor, by common consent are made learned professions; but poor Agriculture, whose hand sows the seed, and whose arm gathers the harvest and the vintage, on which all our earthly comforts, and indeed our very existence depend, she can't be allowed to teach her sons the most valuable of all arts! No matter; we are nothing but "clod-hoppers:" if we have learnt our letters, and can read our bibles, what more can we want to know.

Let the disciples of the old school ridicule "book farming" and laugh at the idea of our sons being sent to college to learn to hoe corn; but, as I have intimated, the spirit of improvement is abroad. If we are charmed upon viewing a garden upon a small scale, the work, perhaps, of a single but skilful individual, how infinitely more charming must be the views of three or four hundred acres planned and laid out with the recommended skill of ages, and viewed by the broad light which Science has thrown upon the subject with all the beauties of the vegetable world, and all the useful of the animal—could any earthly prospect be more delightful.

Although other avocations may offer the greatest prizes in the "lottery of life," yet if we compare the advantages of rural industry with those of any other of the common occupations to which men devote themselves, we shall find that he who is engaged in Agriculture, has no reason to be dissatisfied with the lot which fortune has assigned him. Its superiority in point of salubrity over any sedentary employment is too apparent to require illustration—and it affords more of those common enjoyments, which constitute much of the elements of happiness, than any other state of equal mediocrity. The farm-yard, the orchard, and the dairy, supply almost without expense,

abundant means for those qualifications usually termed the comforts of life, besides many luxuries beyond the reach of people of humble fortune. Few persons are indeed insensible to the difference of mere animal existence as enjoyed by the farmer who passes his days in the healthful labours of the field, and that of the mechanic or the shopkeeper who wears away his life at the bench or the counter. But it is not in these alone that the advantages consist; of all the feelings which we cherish, none is dearer than the consciousness of independence, and this no man who earns his bread by the favour of the public, can be said to enjoy to an equal degree with the farmer. Traders as well as those termed professional men, are rivals, jealous of each other's success, and let this be what it may, they still owe a difference to the world which is often galling to their spirits; but the farmer fears no competition; individually, he has nothing to apprehend from the success of his neighbour; he solicits no preference, and he owes no thanks for the purchase of his produce. His business though subject to more casualties than almost any other, is yet so divided among many risks, that he is rarely exposed to the hazard of total failure; the same weather which often injures one crop, improves another, and the very difficulties of a critical season, opens a field of exertion, by which he is often gainer. Possessing on his farm all the means of life, he is under no corroding anxiety regarding his daily subsistence. He is removed from these collisions of interest, and struggles for precedence, which rouse the worst passions of the heart; and his constant observations of the beneficent dispensatory of nature, for the care of all her creatures, can hardly fail to impress him with a deep sense of that religion of the heart which consists in the conviction of, and reliance upon, the care of an all ruling and all bountiful Providence. And to borrow the sentiment of a distinguished French nobleman—"I could wish to inspire all the world with a taste for Agriculture: it seems to me impossible how a bad man should possess it; there is no virtue I do not attribute to him, who loves to talk of farming and to conduct it. Absorbed in this passion, which is the only one that increases with age, he daily overcomes those which derange the calmness of the soul, or the order of society, when he passed the limits of the city, (the seat of moral and physical corruption) to go and work

on his lands, or to enjoy them, his heart rejoices at the sight of nature, and experiences the same sensations on his lungs, on receiving the pure air that refreshes him."

Nothing tends more to enlarge the mind, and extend the sphere of our rational pleasures, than the contemplation of the economy of nature; and to those whom fortune has placed above considerations of pecuniary advantages, but who set a due value on intellectual enjoyments, the study of Agriculture offers an inexhaustible fund of amusement, as well as instruction. The same object seen under different aspects presents an infinite variety of feature—and the most slender stock of appropriate knowledge, if aided by habits of observation and research, may be eminently useful in ascertaining facts hitherto unknown or unrecorded, and in thus illustrating agriculture, which, however sedulously it has been explored, still opens a wide field for inquiry, while even if not fortunate in the attainment of any material benefit, the mere occupation of the mind in tracing the origin and progress of any novel improvement, will be found productive of the purest gratification. As the soil, however rich, says Seneca, cannot be productive without culture, so the mind without cultivation, cannot produce good fruit.

AGRICOLA.

On the Establishment of an Agricultural Professorship.

Mr. Editor,—To the correctness and importance of the remarks of "Senex," in your March number, I readily concur, and deeply regret, that the subject on which he commented, should not long since have engaged the serious attention of the Agricultural community. A few years ago the expediency of establishing a Professorship of Agriculture in the South-Carolina College, was brought to the notice of the Senate of this State, by a member of that body: the matter was referred to a special committee, and after permission, reluctantly granted by them, the chairman reported favourably. To educate planters in the principles of their own profession, was a doctrine so new, and, in its practical application, "so idle and unnecessary," that the Senate, composed at that period almost wholly of agriculturists, after patiently listening to one speech in elucidation of the provisions of the bill,

postponed indefinitely its consideration. At the same session, Dr. Thomas Cooper, then President of the College, in an able paper, read before the Trustees, urged the eminent advantages of the proposed professorship; but that distinguished tribunal, nine-tenths of whom were lawyers, substantially declared by their votes, that the only knowledge that husbandmen could or ought to seek, was at the "tail* of the plough." These facts conclusively show that, at least, at the period of their occurrence, the moral influence of the learned professions, in reference to the main pursuit of our citizens, continued decided and unimpaired. I shall, perhaps, at a more favourable season, contribute my mite in promoting the laudable design of "Senex;" believing as I solemnly do, that every consideration of interest and patriotism imperatively demands, that the planter should arouse from his lethargy and insist on the possession of those rights and immunities, the withholding of which has so obviously arrested the prosperity of the State. My present purpose is briefly to communicate for the consideration of your readers, an agricultural project, which, at no distant day, I trust, will be successfully carried into execution.

You are aware that, in 1826, the United Agricultural Society of South-Carolina was founded. The benefits which, it was believed, would flow from its institution, were not realized. After a short existence, it was dissolved, without a formal proposition to that effect. The Society was composed of delegates, who, in nearly every instance, were also members of the legislature. This was a fatal mistake. The duties were incompatible, and necessarily, the one of lesser importance was neglected. From this, as the prominent cause, the Society lived but three years, without having conferred any other advantage on our brethren of the soil, than the directing the public mind more pointedly to their vocation. It certainly would have been desirable had the delegates not been constrained to officiate in a two-fold capacity, but others were unwilling to incur the expense inseparable from membership; and the funds of the Parish Societies, where

* This expression was used in a debate by an eminent barrister, not now in the State.

adequate, did not admit of an appropriation to any apparently extraneous object. If a State agricultural association, wholly free from these objections, could be established, I need scarcely say, that the highest considerations invite to the undertaking. To such a scheme, I now claim your indulgence. As an experiment, to endure only for five years, let a Board of Agriculture be created, to hold a meeting at Columbia, in December of each year. Let it consist of one delegate, who shall not be a member of the legislature, from each parish or district: the sessions of the Board to be limited to one week, and the members thereof to receive from the treasury the same per diem pay and for travel, to which our State Representatives are now entitled. At every meeting, the delegates to communicate in writing the condition of Agriculture in their respective districts:* these communications to be referred, if necessary, to a committee to be condensed and then reported to the Legislature; or, should it have adjourned, to the Governor, for the information of the public. To give additional interest and importance to the meetings; the Executive should be created ex-officio a member and President of the Board. Such concisely is my plan to aid in furthering the calling of the planter, and, thereby, effectually to advance the general weal. I know of but one plausible objection to it—the expense. Three dollars each per day for forty-five delegates in session for a week, would give an aggregate of \$810; the mileage would, perhaps, be as much. Let the entire sum be assumed to be \$1700 or \$2000, should premiums be offered, and then may I proudly ask, whether South-Carolina could as profitably expend the same amount on any other scheme so likely to redound to the public good? If, at the expiration of five years, the experiment shall have succeeded, the existence of the Board may be indefinitely prolonged. The following among other favourable results, are confidently to be anticipated from the proposed measure:

1. The drawing the notice of the community directly to the pursuit of the planter. It is conceded, that Agriculture is the grand impelling power by which the various occupations of our citizens are immediately regulated.

* The points on which the Board may need information, should be particularly specified in the constitution or by-laws.

Whilst an abundant crop is a source of profit to every class of industry, a poor harvest is the certain precursor of diminished purses to all—of misfortune, if not ruin, to many. Four-fifths of the people are cultivators of the soil—of the cotton grown in the world, one-twenty-fourth part* is raised in South-Carolina, and of the exports of the Union, one-seventh is her proportion. Although her territorial limits are more circumscribed than fifteen of the twenty-four members of the Confederacy; although in regard to her whole population, she has attained but the eighth rank among the States, and the thirteenth only in reference to her white population; although one-twelfth of her arable land is in a state of nature, and but one-fourth of that quantity is annually cultivated; although her system of husbandry is notoriously deficient; yet, from the value of her staple commodities, it may, with certainty, be affirmed, that she is now the greatest exporting State of native products in the Union. In despite too of the unconstitutional and unjust legislation of Congress, she continues to contribute more largely to the Federal Treasury by over a million of dollars, than the New-England States together. To her other productions of great worth, may, and I in this place take occasion to add, silk and the vine—to the culture of the latter of which, about five millions of acres in the middle country, are peculiarly adapted.

Now, Mr. Editor, if these things be true, how comes it to pass, that the population of several parishes, if not positively retrograding, may with confidence be pronounced, stationary? Where are the inmates of those costly mansions which every where meet the eye in journeying along our public roads? Have the lands lost their fertility or susceptibility of improvement? or, have diligence and skill been succeeded by sloth, extravagance and pride?

All that I ask is, that measures be devised by which the resources of the State may be fairly exhibited. Under auspicious circumstances, it could be practically proved that, in her agricultural capacity, she is entitled by nature to hold the first rank among her co-labourers of the Confederacy, and that her soil is equal to the sup-

* See Secretary of Treasury's late Report on the growth and manufacture of Cotton.

port and enrichment of a population as dense as that of China. Give us union—concentration of opinion, and energy of action; let us be awakened to the precious truth, that with ordinary efforts operating on fixed principles, no section of the continent can exceed our “native home” in all the blessings coveted by avaricious man; in fine, with the aid of Parish Associations, and a Board of Agriculture, South-Carolina will soon be prepared to occupy the important and hazardous station of a frontier State (in a few years she may be compelled to assume it,) in relation to the great question which now convulses the general community.

2. The elevation of our occupation will be ensured, and the degrading distinctions that now exist between it and other professions, may soon cease to be known. This might be well termed a corollary from the preceding proposition. I shall, therefore, offer no observations under this head. “Senex” has alluded to it, and the extracts furnished by him from Mr. Seabrook’s address, are enough to elicit reflections on the part of every one who feels an interest in the subject. If the constituted authorities could be once brought to the practical admission, that the Agriculture of the State is worthy of its direct patronage; or, at least, that its followers ought to receive an education appropriate to their calling; the day will have arrived, when we shall be able to point to the time, when Carolina and her sons will be hailed as the benefactors of the American family.

3. The immense resources of the State will be accurately ascertained. This is apparent from the tenor of the reports contemplated to be made. Each delegate may be required to specify the quantity of cultivated and uncultivated land in his parish or district—the value of each—the products raised, or that might be profitably grown—the average and value of the annual crop—the quantity of unreclaimed swamp land, and the probable expense of subjecting it to culture: how many, if any, plantations have been abandoned within the last — years, and why? It would likewise be an interesting part of their duty to communicate the system of manuring common to their portion of the State, and the effects resulting from it—also the condition of the black population, and, in general, whatever information might be useful or interesting to the Agricultural public.

4. The management of our coloured labourers by this scheme may be reduced to an uniform system. Of the particular mode in which the slaves of the different sections of the State are governed, it must be admitted we are in ignorance. On this point, it is vitally important that correct impressions should exist. To rule with authority, yet in a spirit of patriarchal kindness, is the plain dictate of reason and humanity. Whilst economizing and lightening the labour of his people, to insure a profitable interest on his capital by a well regulated supervision, is the true and obvious policy of the master. The planter sincerely desires to meliorate the moral condition of his slaves, and to allow them every immunity compatible with necessary subordination. How may this be accomplished? To what extent, and in what manner might religious instruction be communicated to them? On what leading principles ought plantation discipline to be conducted? These and a thousand other questions of peculiar interest to the community, will necessarily become the subject of mature deliberation. At this moment, whilst the friends of the North are using every means which the concentrated power of wealth, the press, and fanaticism, affords to desecrate our altars, and raze the pillars of the Union, the Agriculturists of the South, against whom the war of extermination is declared, are as utterly regardless of the approaching, and it may be, sanguinary scene, as though by a special mission from Heaven, they had been assured of the immediate interposition of the Almighty.

We must awake from our lethargy. Isolated efforts cannot now avail us. The whole body of our yeomanry must prepare to meet the event, which, sooner or later, will inevitably happen. The fever of fanaticism has never been subdued by mild and conciliatory treatment. An unbending resolution to uphold and perpetuate our domestic institutions, it is known, universally exists; but that resolution cannot be made effectual without concert. Let the planters of the State, through their representatives, promulge their will and determination, and the shafts of the fanatics, though directed by the wiles and malignity of accomplished tacticians, will fall harmless at our feet. Energy of action will follow unity of purpose. Then, and not till then, shall we repose in safety and peace.

I must here pause—I have not time to pursue the interesting theme. In conclusion, allow me to ask, whether it would not be of vast importance to the State, and especially to the planting interest, to have an early and accurate geological and mineralogical survey of the State? This was attempted a few years ago, but the public are uninformed as to the discoveries made.

EDIÏSTO ISLAND.

Queries to Agriculturists and Importers.

Mr. Editor,—No truth, unfortunately, is better established, than the reluctance of planters to communicate the results of their experience. What each person knows is believed, to be possessed by every other. This opinion, in opposition to the dictates of common sense, has produced incalculable evils to our profession; or, at any rate, it has seriously retarded the progress of Agricultural knowledge. Well written essays, though always read with pleasure, we do not particularly seek. The desire of the planter is information, and if it come to him in a homespun garb, it is as welcome, as though the pen of a finished scholar had been used. Allow me to suggest this scheme to my brethren of the soil. Do you wish light on a particular point? Ask for it through the medium of the *Southern Agriculturist*. With your permission, *Mr. Editor*, I will set the example.

1. Which is known from experience to be better, to plant short to the hand and manure well, or to plant largely, and manure, if at all, but little?

2. Which is the most money-making cotton, the superfine, fine or common?

3. Has the plough ever been used in the culture of sea-island cotton? If so, state the result?

4. What is the best manure for corn, and how ought that valuable grain to be planted and attended?

5. How many Agricultural Societies were in the State in 1830? How many are now in existence, and where located? If any have recently been dissolved, mention the cause.

6. Has Whittemore's cotton gin succeeded? What is its value when compared with the common treadle gin?

7. Which is the best and cheapest mode of feeding horses?

8. Is M'Night's grist mill a useful invention? If so, give particulars.

To these interrogatories let answers plainly expressed be given, and I shall be gratified.

TO IMPORTERS.

1. How many bushels of corn were imported into Charleston the last year?
2. How many bushels of oats?
3. How many bushels of peas?
4. How many bundles of hay?

To the Editor of the Southern Agriculturist.

1. What is the cause of the extraordinary high price of provisions in the Charleston market?
2. How many beeves, calves and sheep were brought to the city in the first quarter of the last year?
3. How many the present year?

EDISTO ISLAND.

Preparation of Lands

Charleston, March 26, 1836.

Mr. Editor,—Though I am not a subscriber to your excellent work, I am friend to any thing that looks like improvement in Agriculture; and I think every planter ought to contribute his mite towards it. Under this consideration, I have been induced to send you this piece; hoping it may prove beneficial. As I know from experience, how time is wanted on a plantation, I think this plan of preparing land for slips, will save some time and labour also.

The land you intend for slips, must be slushed up with the plough. A few days before you are ready to plant your slips, lay your vines on the level and cover them in the same way as if you were planting on beds. You may let your beds be tracked off, about three feet, as you will not want much dirt to haul up to the slips. I tried a small spot in this way, the last year, and had very fine potatoes. I know that some planters will say, that the potato will not have soft earth enough to grow in; but I can assure you that they are mistaken. I shall this year plant the half of my slips after this plan. This way of planting slips need not prevent you from manuring them.

After you have broke up your land, you may put your manure down, and lay your vines on it.

Mr. Editor, if this piece can be of any service to you, you are at liberty to publish it. Wishing you success as editor of the Southern Agriculturist.

I remain yours, with respect.

NO SUBSCRIBER.

We thank "No Subscriber," for the information he has afforded us in his communication. It is by presenting experiments of this nature to the public, that Agriculture is improved. As a passing remark, however, we would suggest that our correspondent's signature, is in very bad taste. "No Subscriber," is a term which sounds so dissocial and indelicate to our ears, that our modesty would scarce permit us to append it to the article. Indeed, our devil, who is a man, whose feelings are as acute, as his pecuniary demands are exact and punctual, remonstrated with us a long time, before he would lend his hand to the publication of a term, (which to use his own appropriate expression,) is almost an unpardonable anomaly in periodical literature. We trust, however, that in tender consideration of the feelings of our devil, that "No Subscriber," will continue such *no* longer; but, with a praiseworthy patriotism, will be found upon the list of our patrons; and thus suffer us to hand down his name to posterity, in the worthy company of those, whose full titles are found in the list of payments upon the back of our journal.—*Editor.*

PART II.

SELECTIONS.

The following is from the New-York *Cultivator*, and part of the system of *British Husbandry*, extracted from that Journal.

Of the Different Species of Mineral Manures.

Alkaline Earths, or Alkalis and their Combinations which are found unmixed with the remains of any organized beings, are the only substances which can with propriety be called fossil manures. The only alkaline earths which have hitherto been applied in this way, are lime and magnesia; though potassa and soda, the two fixed alkalis, are both used to a limited extent in certain of their chemical compounds.

The most common form in which lime is found on the surface of the earth, is in a state of combination with carbonic acid or fixed air. If a piece of limestone or chalk be thrown into a fluid acid, there will be an effervescence. This is owing to the escape of the carbonic acid gas. The lime becomes dissolved in the liquor. When limestone is strongly heated, the carbonic acid gas is expelled, and then nothing remains but the pure alkaline earth; in this case there is a loss of weight; and if the fire has been very high, it approaches to one-half the weight of the stone; but in common cases, limestones, if well dried before burning, do not lose much more than 35 or 40 per cent. or from seven to eight parts out of twenty.

When burnt lime is exposed to the atmosphere, in a certain time it becomes mild, and is the same substance as that precipitated from lime water; it is combined with carbonic acid gas. Quick-lime, when first made, is caustic and burning to the tongue, renders vegetable blues, green, and is soluble, [*i. e.* dissolves,] in water; but when combined with carbonic acid, it loses all these properties, its solubility, and its taste; it regains its power of effervescing, and becomes the same chemical substance as chalk or limestone. Very few limestones or chalks consist entirely of lime and carbonic acid. The statuary marbles, or certain of the rhomboidal spars, are almost the only pure species; and the different properties of limestones, both as manures and cements, depend upon the nature of the ingredients mixed with the limestone; for the true calcareous elements, the carbonate of lime, is uniformly the same in nature, in properties, and effects, and consists of one proportion of carbonic acid, 41.4, and one of lime, 55. When a limestone does not copiously effervesce in acids, and is sufficiently hard to scratch glass, it contains silicious, [*sandy*,] and pro-

bably aluminous, [clayey,] earths. When it is deep brown or red, or strongly coloured of any of the shades of brown or yellow, it contains oxide of iron. When it is not sufficiently hard to scratch glass, but effervesces slowly, and makes the acid in which it effervesces milky, it contains magnesia. And when it is black, and emits a fœtid smell if rubbed, it contains coaly or bituminous matter. Before any opinion can be formed of the manner in which the different ingredients in limestone modify their properties, it will be necessary to consider the operation of pure lime as a manure.

Quick-lime, in its pure state, whether in powder or dissolved in water, is injurious to plants. In several instances grass has been killed by watering it with lime-water. But lime, in its state of combination with carbonic acid, is a useful ingredient in soils. Calcareous earth is found in the ashes of the greater number of plants; and exposed to the air, lime can not long continue caustic, for the reasons that were just now assigned, but soon becomes united to carbonic acid. When newly burnt lime is exposed to air, it soon falls into powder; in this case it is called slaked lime; and the same effect is immediately produced by throwing water upon it, when it heats violently, and the water disappears. Slaked lime is merely a combination of lime, with about one-third its weight of water; i. e. fifty-five parts of lime absorb seventeen parts water, and is called by chemists *hydrate of lime*; and when hydrate of lime become carbonate of lime by long exposure to air, the water is expelled, and the carbonic acid gas takes its place. When lime, whether freshly burnt or slaked, is mixed with any moist, fibrous, vegetable matter, there is a strong action between the lime and the vegetable matter, and they form a kind of compost together, of which a part is usually soluble in water. By this sort of operation, lime renders matter which was before comparatively inert, nutritive; and as charcoal and oxygen abound in all vegetable matters, it becomes at the same time converted into carbonate of lime.

Mild lime, powdered lime-stone, marls or chalks, have no action of this kind upon vegetable matter; they prevent the too rapid decomposition of substances already dissolved, but they have no tendency to form soluble matters. It is obvious from these circumstances, that the operations of quick-lime, and marl, or chalk, depend upon principles altogether different. Quick-lime in being applied to land, tends to bring any hard vegetable matter that it contains into a state of more rapid decomposition and solution, so as to render it a proper food for plants. Chalk, and marl, or carbonate of lime, will only improve the texture of the soil, or its relation to absorption; it acts merely as one of its earthy ingredients. Chalk has been recommended as a substance calculated to correct the sourness of land. It would surely have been a wise practice to have previously ascertained the certainty of this existence of acid, and to have determined its nature, in order that it might be effectually removed. The fact really is, that no soil was ever yet found to contain any notable quantity of uncombined acid. The acetic and carbonic acids are the only two that are likely to be generated by any spontaneous decomposition of animal or vegetable bodies, and neither of these have any fixity when exposed to the air. Chalk having no power of acting on animal or vegetable substances, can be no otherwise serviceable to land than as it alters its texture. Quick-lime, when it becomes mild, operates in the same manner as chalk, but in the act of becoming mild, it prepares soluble out of unsoluble matter. Bouillon La Grange says, that gelatine

oxygenized becomes insoluble, and vegetable extract becomes so from the same cause; now lime has the property of attracting oxygen, and, consequently, of restoring the property of solubility to those substances which have been deprived of it, from a combination of oxygen. Hence, the use of lime on peat lands, and on all soils containing an excess of vegetable insoluble matter.—*Grisenthwaite*.

Effects of lime on wheat crops.—When lime is employed upon the land where there is present any quantity of animal matter, it occasions the evolution of a quantity of ammonia, which may, perhaps, be imbibed by the leaves of plants, and afterwards undergo some change so as to form gluten. It is upon this circumstance, that the operation of lime in the preparation for wheat crops depends; and its efficacy in fertilizing peat, and in bringing into a state of cultivation all soils abounding in hard roots, or dry fibres, or inert vegetable matter.

General principles for applying lime.—The solution of the question whether quick-lime ought to be applied to a soil, depends upon the quantity of inert vegetable matter that it contains. The solution of the question, whether marl, mild lime, or powdered limestone ought to be applied, depends upon the quantity of calcareous matter already in the soil. All soils are improved by mild lime, and ultimately by quick-lime, which do not effervesce with acids, and sands more than clays. When a soil, deficient in calcareous matter, contains more soluble vegetable manure, the application of quick-lime should always be avoided, as it either tends to decompose the soluble matters by uniting to their carbon and oxygen so as to become mild lime, or it combines with the soluble matters, and forms compounds having less attraction for water than the pure vegetable substance. The case is the same with respect to most animal manures, but the operation of the lime is different in different cases; and depends upon the nature of the animal matter. Lime forms a kind of insoluble soap with oily matters, and then gradually decomposes them by separating from them oxygen and carbon. It combines likewise with the animal acids, and probably assists their decomposition by abstracting carbonaceous matter from them combined with oxygen; and consequently must render them less nutritive. It tends to diminish, likewise, the nutritive powers of albumen from the same causes; and always destroys, to a certain extent, the efficacy of animal manures, either by combining with certain of their elements, or by giving to them new arrangements. Lime should never be applied with animal manures, unless they are too rich, or for the purpose of preventing noxious effluvia. It is injurious when mixed with any common dung, and tends to render the attractive matter insoluble. According to Chaptal, lime forms insoluble composts, with almost all animal or vegetable substances that are soft, and thus destroys their fermentative properties. Such compounds, however, exposed to the continued action of the air, alters in course of time, the lime becomes carbonate, the animal or vegetable matter decompose, by degrees, and furnish new products as vegetable nourishment. In this view, lime presents two great advantages for the nutrition of plants; the first, that of disposing of certain insoluble bodies to form soluble compounds, the second, that of prolonging the action and nutritive qualities of substances, beyond the term which they would retain them if they were not made to enter into combination with lime. Thus the nutritive qualities of blood, as it exists in the compound of lime and blood, known as sugar bakers' scum, is moderated, prolonged, and given out by degrees:

blood alone applied directly to the roots of plants will destroy them, with few or no exceptions.

Lime promotes fermentation.—In those cases in which fermentation is useful to produce nutriment from vegetable substances, lime is always efficacious. Some moist tanner's spent bark was mixed with one-fifth of its weight of quick-lime, and suffered to remain together in a close vessel for three months; the lime had become coloured, and was effervescent: when water was poured upon the mixture, it gained a tint of fawn colour and by evaporation furnished a fawn coloured powder, which must have consisted of lime united to vegetable matter, for it burnt when strongly heated, and left a residuum of mild lime.

Of the Uses of the Soils to Vegetables.

Soils afford to plants a fixed abode and medium of nourishment.—Earths, exclusive of organized matter, (animal and vegetable substances,) and water, are allowed by most physiologists to be of no other use to plants, than that of supporting them, or furnishing a medium by which they may fix themselves to the globe. But earths and organic matters, that is, soils, afford at once support and food.

The pure earths merely act as mechanical and indirect chemical agents in the soil.—The earths consist of metals united to oxygen, (a constituent of the atmosphere) and these metals have not been decomposed; there is consequently no reason to suppose that the earths are convertible into the elements of organized compounds, that is, into carbon, hydrogen and azote (three substances which make up the bulk of all plants.) Plants have been made to grow in given quantities of earth. They consume very small portions only; and what is lost may be accounted for by the quantities found in the ashes; that is to say, it has not been converted into any new product. The carbonic acid united to lime or magnesia, if any stronger acid happens to be found in the soil during the fermentation of vegetable matter, which will disengage it from the earths, may be decomposed; but the earths themselves cannot be supposed convertible into other substances, by any process taking place in the soil. In all cases the ashes of plants contain some of the earths of the soil in which they grew, but these earths, as has been ascertained by the earths afforded by different plants, never equal more than one-fiftieth of the weight of the plant consumed. If they be considered as necessary to the vegetable, it is as giving hardness and firmness to its organization. Thus it has been mentioned that wheat, oats, and many of the hollow stalked grasses, have an epidermis [outer bark] principally of silicious earth; the use of which seems to be to strengthen them, and defend them from the attacks of insects and parasitical [which grow and feed upon others] plants.

The true nourishment of plants is water, and decomposing organic matter, [rotted vegetable and animal substances;] both these exist in soils, not in pure earths; but the earthy parts of the soil are useful in retaining water, so as to supply it in the proper proportions to the roots of the vegetables, and they are likewise efficacious in producing the proper distribution of the animal or vegetable matter. When equally mixed with it they prevent it decomposing too rapidly, and by their means the soluble parts are supplied in proper proportions.

The soil is necessary to the existence of plants, both as affording them nourishment, and enabling them to fix themselves in such

a manner as to obey those laws by which their radicles are kept below the surface, and their leaves exposed to the free atmosphere. As the system of roots, branches, and leaves, are very different in different vegetables, so they flourish most in different soils; the plants that have bulbous roots require a looser and lighter soil than such as have fibrous roots; and the plants possessing only short fibrous radicles demand a firmer soil than such as have tap-roots or extensive lateral roots.

The constituent parts of the soil which give tenacity and coherence are the finely divided matters; and they possess the power of giving those qualities in the highest degree when they contain much alumina. A small quantity of finely divided matter is sufficient to fit a soil for the production of turnips and barley; and a tolerable crop of turnips has been produced on a soil containing 11 parts out of 12 sand. A much greater proportion of sand, however always produces absolute sterility. Vegetable or animal matters, when finely divided, not only give coherence, but likewise softness and penetrability; but neither they nor any other part of the soil must be in too great proportion; and a soil is unproductive if it consist entirely of impalpable matters. Pure alumina or silica, pure carbonate of lime, or carbonate of magnesia, are incapable of supporting healthy vegetation; and no soil is fertile that contains as much as nineteen parts out of twenty of any of these constituents.

A certain degree of friability or looseness of texture is also required in soils, in order that the operations of culture may be easily conducted; that moisture may have free access to the fibres of the roots, that heat may be readily conveyed to them, and that evaporation may proceed without obstruction. These are commonly attained by the presence of sand. As alumina possesses all the properties of adhesiveness in an eminent degree, and silex those of friability, it is obvious that a mixture of these two earths, in suitable proportions, would furnish every thing wanted to form the most perfect soil as to water and the operations of culture. In a soil so compounded, water will be presented to the roots by capillary attraction. It will be suspended in it, in the same manner as it is suspended in a sponge, not in a state of aggregation, but minute division, so that every part may be said to be moist, but not wet.

The power of the soil to absorb water by cohesive attraction depends in a great measure upon the state of division of its parts; the more divided they are, the greater is their absorbent power. The different constituent parts of soils likewise appear to act, even by cohesive attraction, with different degrees of energy. Thus vegetable substances seem to be more absorbent than animal substances; animal substances more so than compounds of alumina and silica; and compounds of alumina and silica more absorbent than carbonates of lime and magnesia; these differences may, however, possibly depend upon the differences in their state of division, and upon the surface exposed.

The power of soil to absorb water from air is much connected with fertility. When this power is great, the plant is supplied with moisture in dry seasons; and the effect of evaporation in the day is counteracted by the absorption of aqueous vapour from the atmosphere, by the interior parts of the soil during the day, and by both the exterior and interior during the night. The stiff clays approaching to pipe clays in their nature, which take up the greatest quantity of water when it is poured upon them in a fluid form, are not the soils which

absorb most moisture from the atmosphere in dry weather. They cake and present only a small surface to the air; and the vegetation on them is generally burnt up almost as readily as on the sands. The soils which are most efficient in supplying the plant with water by atmospheric absorption, are those in which there is a due mixture of sand, finely divided clay, and carbonate of lime, with some animal or vegetable matter, and which are so loose and light as to be freely permeable to the atmosphere. With respect to this quality, carbonate of lime, and animal and vegetable matter are of great use in soils; they give absorbent power to the soil without likewise giving it tenacity; sand, which also destroys tenacity, on the contrary, gives little absorbent power. The absorbent power of soils, with respect to atmospheric moisture, is always greatest in most fertile soils; so that it affords one method of judging of the productiveness of land.

As examples of the absorbent powers of soils: One thousand parts of a celebrated soil from Ormiston, in East Lothian, which contained more than half its weight of finely divided matter, of which eleven parts were carbonate of lime, and nine parts vegetable matter, when dried at two hundred and twelve degrees, gained in an hour by exposure to the air saturated with moisture, at a temperature of sixty two degrees, eighteen grains. One thousand parts of a very fertile soil from the banks of the river Parret, in Somersetshire, under the same circumstances, gained sixteen grains. One thousand parts of a soil from Mersea, in Essex, gained thirteen grains. One thousand grains of a fine sand, from Essex, gained eleven grains. One thousand of a coarse sand gained only eight grains. One thousand of a soil of Bagshot Heath, gained only three grains.

Best Breed of Cows.

[FROM THE QUEBEC MERCURY.]

A paragraph lately appeared in this paper, stating that the Lower Canada Society for the Promotion of Agriculture had received answers to certain queries proposed by them, on matters connected with cattle, to the Right Hon. Sir John Sinclair, Bart.; William Aiton, Esq., Charles Gordon, Esq. Secretary to the Highland Society; and William Hamilton, Esq., Secretary to the Botanical and Horticultural Society of Plymouth. We have been favoured with the answers of these gentlemen for publication; they are given below, and will be found to convey much very useful information, communicated with a readiness and in a manner to afford ample proof of the ability and willingness of these distinguished characters to promote the extension of agricultural knowledge, by every assistance they can render.

Sir John Sinclair and Mr. Aiton accompanied their answers with copies of their respective works on agriculture, which are of great value; and Mr. Hamilton rendered his letter doubly acceptable by conveying, at the same time, a further supply of the Victoria or Carracas Wheat. The communications of these gentlemen follow [in part]:

Answers to queries put by the Agricultural Society of Lower Canada, at Quebec, to the Right Hon. Sir John Sinclair, Bart.:

Query 1.—What, in your opinion, is the most celebrated breed of milch cows in Great-Britain?

Answer.—The improved dairy cows in the western counties of Scotland are certainly, now, the most celebrated and valuable breed of milch cows in Great-Britain, or any other part of Europe. Such is the opinion of one who has carefully inspected all the different breeds of cattle in Scotland, in many of the counties of England, as well as on the continent, from Paristo the Texel. The cows in Cheshire are not of a uniform breed, but a mixture of those in the neighbouring counties, and of Scotch and Irish breeds, all crossed and blended together. And as they are not so well fed and treated as the dairy stock in Scotland, they are inferior to them in general character, and in milking. The Durham or Teeswater breed are superior, as dairy cows, to any other breed in England; and if they were as well fed and treated as the Scots dairy stock, they would equal them in beauty and good qualities. The cattle in Holland have often been mentioned as excellent dairy cows, but from the quality of their pasture, and the way they are fed in winter, the Dutch cows have strong bones, coarse shapes, and do not yield so much milk, in proportion to their size, as the dairy cows in the western counties of Scotland. For the history, shapes and qualities of that breed, the Society are humbly referred to the account of the Dutch Dairy Cattle and Husbandry, in the tour through that country, sent with these answers.

Query 2.—What quantity of milk would a cow of such a breed give per day?

Answer.—There is such diversity in the quantity of milk, that some cows yield more than others of the same breed, and still more in what every cow will give under various changes of circumstances; that it is not easy to fix the proper average of the returns of any breed. Cows sprung from the same parents, and reared and fed together, will often vary considerably in the quantity of milk they yield. Cows give less milk when young, or when they are too old, than they do from four to eight years of their age. Cows that are lean give less milk, and that of an inferior quality, than the same cows will give when they are in a good habit of body. Cows generally give more milk for two or three months after calving than they do afterwards. And the manner in which they are fed and treated has a powerful effect on the milking of cows.

But without going into particulars, or mentioning extraordinary returns that some cows have made, it may be stated, with entire confidence, that the fair average of the annual returns of milk, given by thousands of the best of the Ayrshire dairy cows, when they are in good condition and well fed, and when they drop their calves about the end of the month of April, will be nearly as under.

First	50 days,	12 Scots pints per day,	-	-	600
Second	50 days,	10 pints or 20 quarts	.	-	500
Third	do.	7 pints per day,	-	-	350
Fourth	do.	4 do. do.	-	-	200
Fifth	do.	4 do. do.	-	-	200
Sixth	do.	4 do. do.	-	-	150
					<hr/>
					2,000

Some of these cows give still greater returns, and very many that are of inferior sizes, or worse fed, do not give nearly so much milk as stated above. But the society may depend upon the fact, that all the proper dairy cows, when in good plight, and well supplied with pro-

per food, will, in general, yield 2,000 Scots pints, or 4,000 quarts of milk every year. And it is equally certain, that 14 or 15 quarts of that milk will generally yield 22 or 23 ounces of butter; and that from 55 to 60 pints (110 or 120 quarts), of that milk, with its cream, will yield twenty-four pounds avoirdupois of full milk cheese.

Query 3.—What would be the price of a cow of such a breed from two to three years old, and in calf?

Answer.—The prices of milch cows vary so much from diversity of circumstances that it is not easy to fix the price for any length of time. The scarcity of fodder from a very dry summer; the failure of pasture herbage from the same cause, or from the weather being cold and stormy in the months of May and June, which frequently happens in the changeable climate of Scotland, will sometimes lower the price of milch cows, ten, twenty, or thirty per cent., while a more favourable season will raise prices considerably. These cattle are twenty or thirty per cent. cheaper in harvest than they are in May or June. The crops having been abundant, and the summers fine for three years past, the prices of milch cows are considerably higher than they have been for several years before. Some milch cows of the best sort, and in good condition, have been sold as high as £25; but young cows, from two to three years old, and in calf, may be procured of the best sort, at from £10 to £12 each, or still cheaper.

Query 4.—What would be the price of a bull of the same breed, from eighteen months to two years old?

Answer.—Bulls also vary much in price. Some of the best dairy bulls have been sold as high as from £150 to £200: while one of an ordinary description may frequently be procured for £9 or £12. It would be proper to select a bull for Canada about two years old, as the best looking calves frequently alter so much in their shapes and character before they come to maturity, as to render it unsafe to trust to what they may turn out, until they are two years old. The dairy bulls, that have most of a feminine aspect, are preferred to those that are more masculine. A dairy bull of good shape and qualities may be procured for about £14 or £16.

Query 5.—What is the most celebrated breed of cows in Great-Britain, or elsewhere, for the production of butter?

Answer.—The quantity of butter yielded by cows, depends more on the food given them, than on any peculiarity of the breed of cattle; and the quality of the butter is greatly influenced by the mode of feeding, and still more by the manner in which the butter is manufactured. Cows that browse on natural pasture, or what is called old turf, do not yield so much milk as the same cows would give when fed on clover, turnips, cabbages, and new herbage, but the milk of the former is of better quality, and yields more and richer butter, from any given quantity of milk, than that of cows fed on clover, &c. Some individual cows of every breed give richer milk, and of course more butter in proportion to their milk, than other cows of the same breed, and when reared and fed in the same manner. Milk, as it comes from the cows, consists of oily matter, from which butter is made, lactic matter, which forms cheese, and serum, or whey: and the milk of particular cows of every breed differs considerably in the proportions it contains of these respective substances. But it is doubtful if any particular breed can be pointed out, which uniformly yield more butter than any of the other breeds, except in so far as they yield more milk, or are influenced by climate, the mode of feeding, &c.

Much butter, and that of a superior quality, is made in Holland, and particularly in the Province of Freiseland. This seems to proceed from the cattle being fed on meadows where the herbage is of natural growth, and very rich. The cows in Holland give less milk in proportion to their size, than the generality of the Scots dairy cows; but the milk of the Dutch cows is richer than the other. In Holland the milk is not allowed to stand more than from 18 to 24 hours, to cast up cream, while in Scotland it stands double those periods. The consequence is, that nothing but the richest and best cream, which always rises first is made into butter in Holland; while in Scotland, the inferior cream, which makes inferior butter, is collected and churned with the other. And, above all things, the great attention paid to cleanliness in Holland has a powerful effect on the quality of their butter.

Query 6.—What quantity of butter would a cow of such breed produce per week?

Answer.—From what has been already stated as to the diversity of the quality and quantity of milk, the society will readily perceive that it is not easy to answer this query on general principles. A cow, kept by William Cramp, of Lewis, in the county of Sussex, is mentioned in the fifth and sixth volumes of the communications to the Board of Agriculture, as having yielded, in the year 1805, 540 pounds avoirdupois of butter. In 1806, this cow gave 450 pounds of butter, in 1807, she gave 675 pounds, and in 1808, the same cow gave 466 pounds, avoirdupois, of butter. The Secretary to the Board of Agriculture mentioned a cow kept by the Rev. Mr. Heckett, of Beckingham, near Newark, that yielded nineteen pounds, avoirdupois, of butter in one week. But he added, that six, seven, or eight pounds per week, were the common returns of the cows in that part of England. Mr. Vancouver states, in his report of Hampshire, that a cow of an inferior size, kept by Anthony Grave, Symington, yielded from fifteen to sixteen pounds, avoirdupois, of butter per week, for some part of the season. A cow of the Ayrshire dairy breed, kept by Mr. White, on land in Lanarkshire, situated in 800 feet of altitude above the level of the sea, yielded, for several weeks in summer, 1833, sixteen pounds, avoirdupois, of butter per week. And the Rev. Mr. Alpin, of Skarling, obtained at the rate of thirteen pounds of butter from one of his cows that year per week.

But although many such instances of produce could be pointed out, they are far above the ordinary or medium returns of dairy cows. It is certain, however, that thousands of the Scots dairy cows yield 4,000 quarts of milk in the course of one year, as has been mentioned; and it is equally certain that sixteen quarts of that milk uniformly yield, on an average, 24 ounces of butter, so that the average return of these cows, when of good quality, in right condition, and properly fed, is 375 pounds, avoirdupois, of butter, per cow, per annum.

Ruta Baga Culture.

[FROM THE GENESEE FARMER.]

IN giving you last year an account of my first experiment in turnip culture, I mentioned my intention of continuing to raise them, as I was convinced few things could be more profitable. In order to be

certain of having first rate seed, I sent last winter to Mr. Buel, at Albany, and procured half a pound of seed, having a quantity of my own raising to make up the deficiency, should there be any. The ground selected was a wheat stubble, was not manured, but thoroughly ploughed, and then thrown into ridge, as described last year. On these ridges the seed was sown by hand at the distance of ten inches. The seed procured at Albany was sufficient for the whole acre, and a small quantity was left. The time occupied in sowing was about a day and a half. I sowed them a few days earlier than last year, viz. on the 16th of June; as they appeared last year to be in full vigour at the time of pulling. I gathered them the first week in November, and from the acre sown with the Albany seed, measured 450 bushels of very fine smooth turnips. Nearly one-fourth of the ground sown was inclining to clay, and in some places produced no turnips; thus furnishing another proof of the correctness of Judge Buel's remark, that clay ground is unsuited for a turnip crop. Owing to an unusual pressure of farming business, my turnips were hoed but once, which was at the time of thinning—the first week in August. My account with *Ruta Baga* for the year 1834, will stand as follows:

Ploughing twice, and ridging,	-	-	-	-	\$3 00
Seed,	-	-	-	-	0 75
Six days work, thinning and hoeing,	-	-	-	-	4 50
					<hr/>
					\$8 25

The tops will pay for the use of the land and the gathering. Four hundred and fifty bushels of turnips, at twenty cents per bushels, would be \$90, leaving a profit of something like eighty dollars.

There is an impression among some people, that capital employed in farming is but poorly invested. It may in some cases be so, but such is not the result necessarily. The land on which my turnips were this year raised, was part of a small field of four acres, which had been a meadow for several years, but the grass becoming thin and poor, it was, after the mowing in 1830, turned carefully over, dragged on the furrow with a light drag, and sown with wheat. After the wheat was taken off, a quantity of manure was, in the fall of 1831, put on the stubble, and the whole ploughed in. In the spring of 1832, it was again ploughed and sown with barley. The barley stubble was ploughed in and the field again sown with wheat. In the spring of the present year, the wheat stubble was turned in, and the piece rolled down smooth, and three acres planted with corn. As the ground had been carefully levelled, the corn was planted in rows two feet and a half apart, and the hills eighteen inches from each other in the rows; at the first hoeing three stalks were left in a hill. It was hoed twice, the principal part done with a cultivator, and the corn was hilled as little as possible. At gathering, it was estimated to yield from 65 to 70 bushels an acre; and one acre was sowed with the turnips. The avails of these four acres for the four years will be as follows:—

1st crop	-	100 bushels wheat, 8s.	-	-	\$100 00
2d	-	120	barley, 4s.	-	60 00
3d	-	90	wheat, 8s.	-	90 00
4th	{	195	corn, 4s.	-	97 50
		459	turnips, 20 cents	-	90 00
					<hr/>
					\$437 50

No account of the expense of culture was kept except for the last two years, and as it will be seen at a glance that it was performed in the simplest manner possible, on comparing it with recorded results, I am confident that thirty per cent. would be a liberal allowance for seed, labour, &c. leaving a profit on the four acres for the four years of about three hundred dollars.

It has been frequently remarked that small farms were more profitable than large farms. This is no doubt in most cases true; and it is easily accounted for by the fact that on well cultivated small farms, much more capital is employed on the land in the shape of labour, manure, &c. than upon large farms. A small farm bears the same relation to a large farm in this respect, that the garden of the small farm does to the remainder. Where the soil is naturally equally good throughout the whole farm, let it be small or large, might be made as productive and profitable as the garden, were the same capital employed upon it. In farming as in most other kinds of business, it is idle to expect something for nothing; the returns in nine cases out of ten will be in proportion to the labour bestowed.

WILLIS GAYLORD.

Otisco, December 5, 1834.

Experiments of the injury to Corn caused by gathering the Fodder.

[FROM THE FARMER AND GARDENER]

SEVERAL publications in the Register have stated the increase of Indian corn, matured with the blades and tops. The common usage in this county, which I have followed, is, to gather the blades as soon as they begin to spot, and to cut the tops immediately upon securing the blades. About the first of September last, I stript the blades from several rows in one of my corn-fields, leaving a row alternately undisturbed; and cut the tops about the 7th of the month, in like manner. As I designed to make a fair and satisfactory experiment, suffered both blades and tops to be much withered before I took them from the stalks. The last of November I gathered the corn from the stripped and unstripped rows, when it was dry, and in good condition, and put it away in my barn in separate parcels, in the shucks, from both of which I husked out, the 6th of the present month, one hundred ears, without particular selection, and now subjoin their weight and measurement. I am sensible that this experiment will not precisely correspond with others which may be made. The result of such experiments will be influenced by the quality of the soil, the goodness of the crop, the manner of planting, and the maturity of the corn at the time the blades and tops are gathered. My experiment was made from a field planted four feet each way, which had an early, vigorous growth, unchecked by insects or drought, and which produced more than forty-five bushels to the acre. I made other different trials upon the parcels I have mentioned, both by weight and measurement, which I think unnecessary to state, as they all tended to the same result; but, perhaps, I ought not omit to mention, that the weight of the cobs of the unstript corn was double the weight of the stript, as it proves that subtracting the blades and tops dries up that part of the plant which immediately supplies aliment to the grain. To this cause I also attribute the perfection of the grain to the

end of the cob of the unstripped corn, whilst that on the stripped had, for the most part, withered or perished.

100 ears of Indian corn matured with blades and tops—	} 54lbs.
weight on cob, - - - - -	
do. shelled, - - - - -	54
do. measurement, 26 quarts, 1 pint,	
100 ears of Indian corn stripped of blades and tops—	} 50
weight on cob, - - - - -	
do. shelled, - - - - -	41
do. measurement, 21 quarts.	

I have long desired to abandon gathering fodder; but it is hard to depart from common usage, especially, if the deviation has the appearance of negligence. The month of September is usually devoted by farmers to this work; the dews are then heavy, and highly injurious to labourers; it is the season for intermittent fevers, which I believe are often contracted in this employment. The month of September might be most usefully devoted to drawing out marl and other manures, and preparing fallows for wheat. When the wheat is sown and the corn gathered at full maturity, the corn-stalks with the blades and tops, afford some provender and excellent litter for cattle. Few farmers have such floating capital, as justify them in entering upon the schemes of improvement without calculating the cost and probable result. The provender afforded by Indian corn cannot be abandoned, unless an equivalent be supplied. A farm divided into four or five fields, of forty acres each, and one of them annually in Indian corn, will not produce fodder, even if the land be in an improved state, beyond five hundred pounds to the acre—equal to ten tons. Four acres set in orchard-grass and clover, will, if marled and manured, in two cuttings yield ten tons of hay. A gentleman in an adjoining county, in whom I have entire confidence, assured me that from one acre, very highly improved, he gathered six tons in one year. I estimate the enclosing, marling, manuring, and setting in grass four acres, at one hundred dollars per acre, and the land thus diverted from the usual purposes of agriculture, at twenty-five dollars per acre, amounting in the whole to five hundred dollars. The capital thus invested, is not sunk, but is safe and sound, and the interest upon this sum, together with the cost of cutting and securing the hay, which I estimate at forty-five dollars, is the price to be paid annually for hay, in lieu of blades and tops. A field of forty acres of Indian corn which now yields, under the old system of gathering, forty bushels to the acre—equal to one thousand bushels, if my experiment, or that of others, be not entirely fallacious, will produce an additional fifth, amounting to one thousand nine hundred and thirty-three and a third bushels; thereby producing a gain of three hundred and thirty-three and a third bushels—equal, at fifty cents a bushel, to one hundred and sixty-six dollars and two-thirds, to which is to be added the value of the labour saved, and the grazing after the hay is secured, which is worth something. If a lot be once well set in orchard-grass and occasionally dressed with manure from the stable, where the grass is fed it will remain in a state of undiminished production for many years—in this I feel confidence, from my own observation.

I have but one pit of blue marl in which I have found "gunpowder marl." It exhibits no lime by the test of acids. There is no green

sand—but it has many shining particles, and a sulphureous smell. It retains the impression of large shells, and some sharks' teeth, in a state of perfect soundness, have been found. I have supposed that the hardness of the teeth has resisted the agents which decomposed the shells. On this subject, Mr. Newton's essay in the Register is highly instructive. I have long thought that this pit contained properties, fertilizing beyond lime. It does not by the test of acids exhibit lime equal to another pit; yet it has been uniformly quicker in its action, and greater in its product. I am pleased that specimens of the gunpowder marl found in Virginia, have been sent to Professor Rogers. Agriculture stands indebted to him for much useful information. I left a specimen, taken from my pit, with our Professor Ducatel. If the properties, suggested by Mr. Newton, shall be found in them, in addition to my own personal benefit, I shall feel gratified that this source of improvement is common to Virginia and Maryland.

As this article contains little more than a statement of facts, I have subjoined my name in attestation of their accuracy.

WILLIAM CARMICHAEL.

Wye, Queen Anne Co. Md., Jan. 27th, 1836.

Facts observed connected with Steeping Seed Wheat.

[FROM THE FARMERS' REGISTER.]

IN the latter part of September, I had some conversation on the subject of sowing wheat, with a gentleman who cultivates a farm in the neighbourhood of Petersburg, and who, in addition to his general very neat management, and the high improvement of his land, is celebrated for making remarkably heavy and clean crops of wheat—usually on a green or manure crop of field-peas or buckwheat. He stated his belief that his practice of steeping his seed in a saturated solution of salt for 18 hours, (and he did not fear danger from 24 hours,) and then dusting it with quicklime, and stirring the wet heap with shovels until every grain was partly covered, was not only a safeguard against smut, but against the attack of the Hessian fly. He had been induced to believe that the eggs of this insect were deposited on the grains of wheat, and that if destroyed (as supposed) by his process of steeping, &c. that the crop would be safe from that source of danger, however, early the sowing. He had not examined particularly for the presence of maggots—but he had never found his harvests apparently lessened by their ravages, not even in the last crops (1835) which was so generally and greatly injured by the fly. His crop of that year had been almost ruined by the *rust*, (induced probably by the great luxuriance of growth,) but he had not noticed any damage from the fly.

In passing along the road by the side of the field, I had myself witnessed the heavy and beautiful crops made every year; but still was not prepared to admit the absence of the fly, or the value of the supposed safeguard against them. I attributed their apparent harmlessness to the great fertility and excellent tillage of the land, which, with very thick sowing, enabled the crop to withstand the ravages of the fly, and even to conceal their existence from slight observation. I requested my friend to search for the maggots on the young plants—and accordingly, before six weeks had passed, he was enabled to find

them in such plenty as to prove that his usual steeping process had not been the cause of his apparent exemption from loss of this kind.

But however incredulous I was to this supposed effect, I considered it worth testing by experiment: and the more so, as I knew from experience that the process was valuable as a security against smut, and beneficial otherwise in cleaning the seed of all matters light enough to swim in strong brine. In addition to steeping and liming my whole quantity of seed wheat, with some variations of method, the following experiment was made on a small scale, which presented a result totally unlooked for, and which induces me to offer these observations.

The latter part of September, 1835, was so unusually cold, that I thought (though very erroneously) that we might venture to begin to sow wheat on October 1st, as safely as in ordinary years on October 10th. I began my sowing September 30th. On that day, I took a handful of my seed wheat, and put about half in a glass of water, saturated with common salt. It stood 22 hours, then was taken out, drained, and, while wet, dusted with as much quicklime as would stick to the grains: 100 of these were placed on wet cotton, floating on a half pint of water in a glass—the water fresh and pure, except for the salt and lime adhering to the grains. Several hundred grains that had not been steeped, nor made wet previously, were placed in like manner on cotton in another glass—and both kept in my house, in the like exposure. At the same time, the remaining steeped grains, and the dry, were sown side by side, in two rows, and covered about an inch deep. The earth was then remarkably dry for the season: yet the sprouts from the dry grains came up about 24 hours before the steeped, though the latter had been kept wet 22 hours before both had been put in the ground. A like result was observed, and about as much difference in time, between the first sprouting of the two parcels in the glasses.

As the sprouting was so evidently retarded by the steeping, the doubt arose, and still remains unsettled, whether the germinating power was not weakened as well as retarded—and in some measure, totally destroyed. I can only state the imperfect results so far as known—and do so to strengthen my request of others, to aid in more full observations next season. I could not tell whether any of the steeped grains which were sown, had failed to sprout, as the number had not been noticed before sowing them. Of the 100, floating on cotton, sprouts continued to rise for 16 days after so placing the grains—and at that time about 19 grains still had not sprouted. However, some of them, or possibly all, might have done so if the experiment had been continued. In placing grains on floating cotton, some will be deeply immersed; and that will prevent sprouting. I only know that more than four-fifths *did sprout*—and that all of the hundred grains were alike treated in the steeping and liming.

The difference of size in the growth of the two drills soon became imperceptible—and by the end of October, it seemed to me that the growth from the steeped grains was decidedly the most vigorous and luxuriant of the two. In this, I may have been deceived—but two other persons concurred with me in the opinion. Being afterwards exposed to the grazing of cattle, no later observations could be made. But the object of the experiment as to the fly, had been previously obtained. Maggots were found, in equal plenty, on the steeped row; and not one was found on the grains not steeped, which grew in the

glass in my house, until the shoots were 6 inches high. It was a fair inference, that if the eggs were on the grains, the maggots ought to have been found on these plants, as plenty as if exposed out of doors; and such is stated to have been the result, in the experiments of other persons.

In the meantime, my first week's seed had been equally exposed by steeping 18 hours or more in brine, before being limed. Whether it was thereby injured, could not be possibly known. But either from that cause, or too little seed being used, the crop came up much too thin—and was afterwards greatly injured by the fly before the commencement of weather cold enough to suspend their depredations.

E. R.

Sugar.

[FROM THE LONDON PENNY MAGAZINE.]

SUGAR may be properly reckoned a necessary of life. It is of almost universal use throughout the world. The scattered tribes of North American Indians spend the months of spring in their rude encampments, manufacturing sugar out of the juice of the maple; the five-and-twenty million inhabitants of the United Kingdom employ, throughout the year, two hundred thousand tons of shipping to export five hundred million pounds of sugar from their colonies. This enormous supply affords, upon an average, 20lbs. of sugar to each individual of our twenty-five millions of population. Through the natural operation of our commercial power this important article of comfort is placed within the reach of the humblest in the land, although the revenue received by the state from the consumers amounts to 5,000,000*l.* annually.

The sugar-cane must be considered as a native of China, since it has been pretty accurately shown that its cultivation was prosecuted in that empire for two thousand years before sugar was even known in Europe, and for a very long period before our eastern nations became acquainted with its use. For some time after this substance, in its crystalline form, had found its way to the westward, through India and Arabia, a singular degree of ignorance prevailed in regard to its nature, and the mode of its production; and there is reason for believing that the Chinese, who have always evinced an unconquerable repugnance to foreign intercourse, purposely threw a veil of mystery over the subject. Persons have not been wanting, even in modern times, who have approved of this anti-social spirit, as being the perfection of political wisdom; but is it not a complete answer to their opinion, that every nation which has cultivated commercial relations has been steadily advancing in civilization, and adding most importantly to the sum of its comforts and conveniences? While the inhabitants of China, although possessed of the greatest natural advantages, arising from variety of soil and climate, by which advantages they had so long ago placed themselves in advance of other people, have remained altogether stationary?

A knowledge of the origin of cane sugar was correctly revealed in the middle of the thirteenth century, by the celebrated traveller Marco Polo; though it was partially known much earlier. The plant was soon conveyed to Arabia, Nubia, Egypt, and Ethiopia, where it became extensively cultivated. Early in the fifteenth century the sugar

cane first appeared in Europe. Sicily took the lead in its cultivation; thence it passed to Spain, Madeira, and the Canary Islands: and shortly after the discovery of the New World by Columbus, this plant was conveyed to Hayti and Brazils, from which latter country it gradually spread through the islands of the West-Indies.

The sugar-cane varies exceedingly in its growth, depending upon the nature of the soil. In new and moist land it sometimes attains the height of twenty-feet. It is always propagated from cuttings. The hoeing of a cane-field is a most laborious operation when performed, as it must be, under the rays of a tropical sun. Formerly this task was always effected by hand labour, but, of late years, where the nature of the ground will admit of the employment of a plough, that instrument has been substituted, to the mutual advantage of the planter and his labourers. The planting of canes does not require to be renewed annually; in such a case the utmost number of labourers now employed on a sugar plantation would be wholly inadequate to its performance.

When the canes are fully ripe they are cut close to the ground, and being then divided into convenient lengths, are tied up in bundles, and conveyed to the mill. The canes, on being passed twice between the cylinders of this mill, have all their juice expressed. This is collected in a cistern, and must be immediately placed under process by heat to prevent its becoming acid. A certain quantity of lime in powder, or of lime water, is added at this time to promote the separation of the grosser matters contained in the juice; and these being as far as possible removed at a heat just sufficient to cause the impurities to collect together on the surface, the cane-liquor is then subjected to a very rapid boiling, in order to evaporate the watery particles, and bring the syrup to such a consistency that it may granulate on cooling. Upon an average, every five gallons, imperial measure, of cane-juice, will yield six pounds of crystallized sugar, and will be obtained from about one hundred and ten well-grown canes.

When the sugar is sufficiently cooled in shallow trays, it is put into the hogsheads in which it is shipped to Europe. These casks have their bottoms pierced with holes, and are placed upright over a large cistern into which the molasses—which is the portion of saccharine matter that will not crystallize—drains away, leaving the raw sugar in the state wherein we see it in our grocers' shops: the casks are then filled up, headed down, and shipped.

The molasses which have drained from the sugar together with all the scummings of the coppers, are collected, and, being first fermented, are distilled for the production of rum.

India-Rubber ; or Caouthouc.

[FROM THE LONDON PENNY MAGAZINE.]

THE substance called India Rubber, or Caouthouc, was not known in Europe until the beginning of the eighteenth century. It was then brought as a great curiosity from South-America. It usually appeared in this country in the shape of bottles, birds, or other fantastically moulded forms; and nothing could be learnt of its nature or of the manner of obtaining it, except that it was of vegetable production. Europeans continued in this ignorance of its origin until a deputation of the French Academicians undertook a voyage to South-America

in 1735, for the purpose of obtaining the correct admeasurement of a degree of the meridian. Those philosophers did not confine their attention to the one great object of their pursuit, but likewise enriched the scientific world by ascertaining many facts connected with natural history, and which had heretofore been hidden in obscurity. Among these subjects the manner in which the peculiar substance, caoutchouc was produced, became an object of inquiry. These academicians discovered at Esmeraldas, in Brazil, trees called by the natives *hevé*, whence flowed a milky juice, which, when dried, proved to be what is called India-rubber, or caoutchouc. The *hevé* was likewise recognized as growing in Cayenne on the banks of the Amazon river. It has since been discovered that caoutchouc may likewise be obtained from another species of tree growing in South-America—the *jatropa elastica*.

If these trees are punctured, a milky juice flows out, which, on exposure to air, thickens into a substance of a pure white colour, having neither taste nor smell. The hue of the caoutchouc of commerce is black in consequence of the method employed in drying it. The usual manner of performing this operation is to spread a thin coating of the milky juice upon moulds made of clay, and fashioned into a variety of figures. These are then dried by exposure to the heat of a smoke-fire: another layer is then spread over the first, and dried by the same means; and thus layer after layer is put on, until the whole is of the required thickness. While yet soft it will receive and retain any impression that may be given to it on the outside. When perfectly dry the clay-form within is broken into small fragments by percussion, and the pieces are drawn out through the aperture, which is always left for the purpose. The common bottle of Indian rubber, therefore, consists of numerous layers of pure caoutchouc, alternating with as many layers of soot.

The natives of those parts of South-America to which these trees are indigenous, convert the juice to a variety of purposes. They collect it chiefly in the rainy season, because, though it will exude at all times, it flows then most abundantly. Boots are made of it by the Indians, through which water cannot penetrate; and the inhabitants of Quito prepare a kind of cloth with it, which they apply to the same purposes as those for which oil cloth or tarpawling is used here. This, no doubt, is similar to the cloth now prepared with this substance in England, the use of which promises to yield so many important advantages.

The South-Americans likewise fashion it into flambeaus, which give a beautiful light, and emit an odour which is not unpleasant to those who are accustomed to use them; but Europeans are annoyed by the fetid smell which they diffuse. One of these, an inch and a half in diameter, and two feet long, will burn during twelve hours.

Since the discovery of caoutchouc in America, a similar juice has been obtained from several trees growing in Asia, and which likewise are natives of tropical regions. These are the *Ficus Indica*, *Arlocarpus Integrifolia*, and *Urceola Elastica*. The fluid obtained from the latter plant is dried in a different manner, and constitutes the solid flat pieces which are known as white Indian rubber.

Caoutchouc possesses some peculiar and remarkable properties, which, from the earliest period of its being known in Europe, have been subjects of the diligent investigation of some of the most eminent

chemists. It is the most pliable and elastic of known substances, and so tenacious that it cannot be broken without considerable force. It has always been a desideratum with chemists to dissolve caoutchouc by some means which would allow it to re-form, and to assume different figures, with the same facility as they can be imparted when in its original state of fluidity.

Within the last few years two solvents, which can be abundantly and cheaply supplied, have been found for caoutchouc, which, when evaporated, leave it unchanged. By these means this substance is made to be of extensive application. A thin coating of the solution spread on any texture renders it impervious to air or moisture; while, at the same time, it can be folded in as portable a form as before it had received this preparation. Hence, pillows and even beds are formed out of bags thus made air-tight; and these being furnished with a small tube and stop-cock, may be inflated at pleasure into soft elastic cushions. Cloaks having their inner lining of this material are found to be effectually water-proof.

We have recently given an account of a novel application of this substance, which promises to be of very general benefit.

More than fifty-two thousand pounds of caoutchouc were imported into England in 1830, being nearly double the quantity brought during the preceding year. Its price is from 1s. 6d. to 2s. 3d. per lb. The duty upon it is 5d. per lb. This increase in the demand is to be ascribed to the application of the substance as an article of general utility.

Tobacco.

[FROM THE LONDON PENNY MAGAZINE.]

TOBACCO was introduced into Europe from the province of Tabaca, in St. Domingo, in 1559, by a Spanish gentleman, named Hernandez de Toledo, who brought a small quantity into Spain and Portugal. From thence, by the means of the French ambassador at Lisbon, Jean Nicot, from whom it derived its name of Nicotia, it found its way to Paris, where it was used in the form of a powder by Catherine de Medici. Tobacco then came under the patronage of the Cardinal Santa Croce, the pope's nuncio, who, returning from his embassy at the Spanish and Portuguese courts, carried the plant to his own country, and thus acquired a fame little inferior to that which, at another period, he had won by piously bringing a portion of the *real cross* from the Holy Land. Both in France and the Papal States it was at once received with general enthusiasm, in the shape of snuff; but it was some time after the use of tobacco as snuff that the practice of smoking it commenced. This practice is generally supposed to have been introduced into England by Sir Walter Raleigh; but Camden says, in his 'Elizabeth,' that Sir Francis Drake and his companions, on their return from Virginia, in 1585, were "the first, as far as he knew, who introduced the Indian plant, called Tabacca or Nicotia, into England, having been taught by the Indians to use it as a remedy against indigestion. And from the time of their return," says he, "it immediately began to grow into very general use, and to bear a high price; a great many persons, some from luxury, and others for their health, being want to draw in the strong smelling smoke with insatiable greediness through an earthenware tube, and then to puff it forth

again through their nostrils: so that tobacco taverns (*tabernæ tabaccae*) are now as generally kept in all our towns, as wine-houses or beer-houses." No doubt the tobacco-taverns of Queen Elizabeth's times were not unworthy predecessors of the splendid cygar divans of the present day. It appears from a note in the 'Criminal Trials, vol. i. p. 361, that in 1600, the French ambassador, in his despatches, represented the Peers, on the trial of the Earls of Essex and Southampton, as smoking tobacco copiously while they deliberated on their verdict. Sir Walter Raleigh, too, was accused of having sat with his pipe at the window of the armoury, while he looked on at the execution of Essex in the Tower. Both these stories are probably untrue, but the mere relation of them by contemporaneous writers shows that they were not then monstrously incredible, and they therefore prove the generality of the practice of smoking at that time amongst the higher class of society. After a time, however, the practice of smoking tobacco appears to have met with strenuous opposition in high places, both in this country and other parts of Europe. Its principal opponents were the priests, the physicians, and the sovereign princes; by the former its use was declared sinful; and, in 1684, Pope Urban VIII. published a bull, excommunicating all persons found guilty of taking snuff when in church. This bull was renewed in 1690, by Pope Innocent; and, about twenty-nine years afterwards, the Sultan Amurath IV. made smoking a capital offence. For a long time smoking was forbidden in Russia, under pain of having the nose cut off; and in some parts of Switzerland, it was likewise made a subject of public prosecution—the police regulations of the canton of Berne, in 1661, placing the prohibition of smoking in the list of the Ten Commandments, immediately under that against adultery. Nay, that British Solomon, James I., did not think it beneath the royal dignity to take up his pen upon the subject. He accordingly, in 1603, published his famous 'Counterblaste to Tobacco,' in which the following remarkable passage occurs:—"It is a custom loathesome to the eye, hateful to the nose, harmful to the braine, dangerous to the lungs, and in the black stinking fume thereof nearest resembling the horrible Stygian smoke of the pit that is bottomless." But notwithstanding this regal and priestly wrath, the use of the plant extended itself far and wide; and tobacco is, at this moment, perhaps the most general luxury in existence. The allusion to the practice in the following lines, taken from the 'Marrow of Compliment,' written in 1654, seems to show the prevalence of smoking at that period:—

"Much meat doth Gluttony procure
To feed men fat as swine;
But he's a frugal man indeed,
That on a *leaf* can dine!
He needs no napkin for his hands,
His fingers' ends to wipe,
That hath his kitchen in a box,
His roast meat in a Pipe!"

Age of the Horse.

[FROM THE LONDON PENNY MAGAZINE.]

THE method of judging the age of a horse is by examining the teeth, which amount to forty when complete; namely, six nippers, or incisors, as they are sometimes called, two tushes, and six grinders on each side, in both jaws. A foal, when first born, has in each jaw the first and second grinders developed; in about a week the two centre nippers make their appearance, and within a month a third grinder. Between the sixth and ninth month the whole of the nippers appear, completing the colt's mouth. At the completion of the first year a fourth grinder appears, and a fifth by the end of the second year. At this period a new process commences, the front or first grinder giving way, which is succeeded by a larger and permanent tooth, and between two years and a half and three years the two middle nippers are displaced, and succeeded by permanent teeth. At three years old the sixth grinder has either made or is about making its appearance. In the fourth year another pair of nippers and the second pair of grinders are shed; and the corner nippers, towards the end of the fifth year, are succeeded by permanent teeth, when the mouth is considered almost perfect, and the colt or filly becomes a horse or a mare. What is called the *mark* of the teeth by which a judgment of the age of a horse for several years may be formed, consists of a portion of the enamel bending over and forming a little pit in the surface of the nipper, the inside and bottom of which become blackened by the food. This soon begins to wear down, and the *mark* becomes shorter and wider, and fainter. By the end of the first year the mark in the two middle teeth is wide and faint, and becomes still wider and fainter till the end of the third year, by which time the centre nippers have been displaced by the permanent teeth, which are larger than the others, though not yet so high, and the mark is long, narrow, deep, and black. At four years the second pair of permanent nippers will be up, the mark of which will be deep, while that of the first pair will be somewhat fainter, and that of the corner pair nearly effaced. At this age, too, the tushes begin to appear. Between the fourth and fifth year, the corner nippers have been shed, and the new teeth come quite up, showing the long deep irregular mark; the other nippers bearing evident tokens of increasing wearing. At six years the mark on the centre nippers is worn out, but there is still a brown hue in the centre of the tooth. At seven years the mark will be worn from the four centre nippers, and will have completely disappeared at eight years from them all. It may be added, that it is the lower jaw of the horse that is usually examined, and which is here described. The changes of the teeth taking place in both jaws about the same time, but the cavity of the teeth in the upper jaw being somewhat deeper, the mark lasts longer, though the exact period is a matter of controversy. According to what may be considered good authority, however, it may be stated that at nine years the mark will be worn from the middle nippers, from the next pair at ten, and from all the upper nippers at eleven. During all this time the tushes (the extremities of which are at first sharp-pointed and curved) become gradually blunter, shorter, and rounder. For further information on this subject, the volume on the Horse, published by the Society, may be advantageously consulted.

*On the Advantages to be derived from the Establishment of an
Agricultural Professorship.*

[FROM THE FARMERS' REGISTER.]

Sir,—It has been a settled conviction on my mind for years, that a Professorship of Agriculture—a pattern farm, and such a paper as yours, united therewith, would be productive of incalculable benefit to the commonwealth. The space of a letter is too confined to admit of one half being stated. Suffice it to say, it would elevate the science, add dignity to the pursuit, call off from encumbered avocations a portion of the mind of our citizens now lost to the community; present a rallying point for all the scattered information of the land; reduce to the test of experiment every theory plausible enough to justify it; by the same standard to prove the value of every discovery of improvement; promote economy by causing one experiment for many; a certain and rapid communication, through the state of the results; furnish a sure means of ascertaining the nature of our climate; the quantity of rain falling in the year; the seasons when drought most generally prevails; and by consequence, furnish data to guide the husbandman in the cultivation of crops, both as to time and kind. But I must stop—for I find no end to the advantages that would result from such an establishment. Let me, however, add one more. All these things are to be done before the youth of Virginia—the future men of this commonwealth, destined eventually to influence her destiny. A portion of these, selected from every part of the State, (say one to each congressional district,) of promise, but unable, from poverty, to educate themselves, to become the adopted children of the State, would be able by alternate labour and study, alike to keep up the farm, and to improve themselves. Indeed, it is worthy of the profoundest consideration, whether every student of the University would not profit by a few hours' work daily, in the proper season. These being my views, I submit to you whether it does not behove the tillers of the earth to make an effort to induce the legislature to attend to their neglected interests. How is this to be done? I answer, as every other sect effects every thing, by conventions—to that alternative we must also resort. What say you to such a convention, to meet in Richmond the first Monday in January? Let any one who feels an interest in the object attend. Let each agricultural society in the State be represented there. If it be asked what good can come of it, the answer is, let us try it. A free communion of the intelligence of the land cannot be altogether unproductive of good fruit. Apart from what can be done by such a convention on its own means, an appeal may be made to the legislature under the weighty sanctions of their united wishes to do something for us. If the view which I suggest is esteemed impracticable, they may incorporate an agricultural society in each congressional district, and award a small sum to each, to be distributed in premiums, after the manner of New-York and other States.

But it is objected that it will cost something. Have we not, as a class, offered our fleece annually, without a murmur, to be appropriated to other improvements? Is it unreasonable that in turn we should require a small portion of our own to be applied to our own peculiar benefit? A small portion of the interest paid annu-

ally by the University would in a few years put our scheme completely in operation, and I verily believe after that it would support itself. However, all these things might be discussed in convention, and digested in a form that would be most acceptable. And I may be permitted to add, that for once we should have a convention, whose sole object would be the good of the country—a spectacle so singular in these times that it could not fail to be as consolatory as the oasis to the weary traveller of the desert.

If you agree with me on this point, you can greatly promote the object by inviting the meeting in your journal. If I thought my name would be of any service, you are at liberty to use it with my remarks. But I fear not. However, do as you please. I have it much at heart to do something. Better heads than mine may suggest better plans, to which I will cordially submit.

Accept assurances of my high consideration.

JAMES BARBOUR.

Barbourville, July 23, 1835.

*Directions for sowing the seed and raising the plants of the
White Italian Mulberry Tree.*

1. To sow an ounce of seed, prepare a bed 50 feet long and 4 feet broad. Manure it well with a compost composed of one-third stable manure, one-third ashes, and one-third decomposed leaves from the woods, or garden mould; dig deep, pulverize finely, and then lay the beds off in drills 12 inches apart, one-quarter or one-half of an inch deep; sow the seed as thick as your onion or parsnips; cover with rich mould, press the mould down gently, but sufficiently to cause the seed to come into contact with the earth; and should the weather be dry, water the seed bed every other evening, it will assist in promoting the germination of the seed and vigorous growth of the plant.

2. Keep the beds clean of weeds; and give an occasional watering with suds or soot and water, say once a week after they are up.

3. The second year, if not removed before, the plants must be removed into the nursery rows, which must be prepared as for any other crop. The ragged roots being taken off and the tap-root shortened, the plants must be planted out 12 inches apart in rows three feet apart, the earth to be well trodden around the plant. As before, the earth must be kept open and free from weeds.

4. At two years old, the plants may be planted out into hedges, at 18 inches apart in rows six feet wide. The ground should be prepared as before directed, and some good rich mould put into the holes, to be pressed around the plant. If intended to be planted out as standard trees, 20 feet square apart would be a good distance; but in that case the plants should not be transplanted until they are about an inch in diameter. In either case they will require trimming and topping, and if kept as hedges should be treated as other hedges are.

Value and Importance of Agricultural Papers.

[FROM THE TENNESSEE FARMER.]

WHILE contemplating the immense and incalculable benefits which must necessarily result not only to the farmer and planter, but to the public in general, and to every class of the community in whatever occupation engaged, from the general improvement of agriculture, and the powerful tendency of agricultural papers to produce such improvement, the man of reflection, who loves his country, and who feels any regard for the happiness of his fellow men, cannot but be struck with astonishment, not only at beholding so many of those who are devoted to the profession of agriculture, and who are entirely dependent on it for the supply of all their wants, voluntarily debarring themselves from the easiest, the most agreeable, the cheapest, and the most effectual mode of acquiring knowledge in their profession—but at the short sighted views of those who are obviously not less deeply interested than the farmer himself, in producing that state of improvement, on the production of which the prosperity of all is alike dependent. Let every man but ask himself, what would be the effect on the public prosperity, and on that of every individual of which society is composed, whatever may be his occupation, were the fertility of the land and the quantum of his annual production to be doubled, trebled, or quadrupled—all must see at a glance, that the national wealth and resources would be in the same degree enhanced. The government would be enabled, with far less inconvenience to the people, to raise double, treble, or quadruple the revenue which can now be collected, either for the purpose of defending the country against foreign enemies, improving it by roads, canals, &c., or, for what is of still greater importance than either, the establishing and sustaining a system of Universal Education, by which, and by which alone, liberty can be perpetuated, the people elevated to that dignity and worth of which they are capable, and which it should be considered the first duty of every Republican Government to confer. The farmer and planter would be benefited by receiving a double, a treble, or quadruple reward for his labour, to be expended in supplying his wants, increasing his wealth, or promoting his comfort. The merchant, the lawyer and the mechanic, will be benefited by a double, treble, or quadruple ability in their customers to purchase their goods, or to reward them for their services; and above all, the labourer of every description, would be benefited by constant employment, and good wages paid in ready money. In a word, universal prosperity would overflow the land, and universal intelligence and increase of virtue, would enable and dispose the people so to use it, as to banish from the country by far the larger portion of that misery and distress under which mankind, in all ages and countries, have heretofore groaned, and which must continue to be their lamentable lot, until by an elevation of the intellectual and moral character of the mass of the people, they shall be qualified so to improve the resources which a benignant Providence has placed at their command, as to enable every one, by moderate labour, to acquire the necessities and comforts of life. That such would be the ultimate effects of doubling, trebling, quadrupling the products of the earth by the industrious exertions of the agricultural community, if guided and directed

by intelligence, is too plain to require proof. Would the general circulation of agricultural papers, by diffusing agricultural knowledge, and by continually presenting to the mind of the agriculturist, clear, unequivocal and demonstrative proof, that great and ample rewards, are the sure and certain consequence of such exertions, have a tendency to stimulate the community to active and intelligent exertions? He who doubts this, must believe the gross and palpable absurdity, that the greater the knowledge a man possesses of the business in which he is engaged, the more will he be disqualified to pursue it with advantage, and that the more clearly and distinctly the prospect of reward for his labour is held out to the farmer, the greater will be his indolence. With those who can believe these propositions, if any such there be, it would be vain and idle to reason—they can believe any thing which they wish—their error proceeds not from the head, but from the heart—what they want is not the capacity, but the inclination to discover truth. To all others, of whatever character or occupation, we would say, if you believe that agricultural improvement would be thus beneficial to your country, conducive to the best interests of yourselves and of your fellow-citizens, of every class and description, and that the wide and general circulation of agricultural papers would have a tendency to produce that improvement, do not patriotism, philanthropy, and an enlightened regard to your own interest, all conspire to demand, that you should exert yourselves by every means in your power, by your example, by your exhortations, by your instructions, and by your influence, to extend as widely as possible the circulation of papers entirely devoted to the diffusion of agricultural knowledge and the production of agricultural improvement—papers whose influence, while it may be productive of such incalculable good, can by no possibility be injurious to any human being? We ask you, calmly, soberly, and deliberately, to consider this subject, and then to act in such a manner as reason, conscience, patriotism, and an enlightened regard to your own interest, shall dictate. For ourselves, we entertain not a particle of doubt, that were some well conducted agricultural paper generally circulated and read in every neighbourhood in the United States, its salutary influence would, in a few years, be clearly exhibited in the intellectual and moral improvement of the people, in the increase of the national wealth and resources, and in the increased happiness and prosperity of all classes of the community. To the production of such results we are not only willing, but desirous of contributing our utmost exertions, and it is therefore, that we solicit all those who have it in their power, by the communication of agricultural knowledge, and by their exertions in promoting its diffusion to the widest practical extent, to afford us their aid and co-operation—on that aid and co-operation, we are fully sensible, must the success of ours, and of all similar efforts, in a great measure depend.

On the Culture of Silk.

[FROM THE FARMER AND GARDENER.]

OUR *Silk Manual* is now before the public, and thus far the demand for it has more than realized our most sanguine expectations. In its compilation we have endeavoured to aim at *fidelity*; that is the only merit we lay claim to, and if the public should adjudge us that need, our ambition will be more than gratified. We have believed for years that there was no part of husbandry, to which the agriculturists could turn their attention, that promised any thing like the same fruitful results. Thus impressed, we were induced to undertake the compilation of our little work, and the belief that it was calculated to exercise a great moral and political influence, animated us throughout in the discharge of our labours. These, as the reader will readily believe, have been arduous. On a subject like that of the silk culture, where so much has been written—where so many philosophical speculations have been advanced, and where so much mystery has been thrown around a branch of industry simple in itself, the task of separating the *practicable* from the *impracticable*, could not be expected to be without its difficulties. We believed from the beginning, that what the public interest demanded, was a *plain, practical set of instructions*, which could be followed, without the least embarrassment, by any one of ordinary intelligence, who might desire to enter into it, either as a *branch* of his system of husbandry, or as a *separate* and distinct business. For years we had looked on with unmixed feelings of pain at the low rate of female wages, and the precarious nature of their employment. In the large and populous cities where labour so abounds, we had seen it almost impossible for the widowed mother to earn by her needle, or indeed, by any other creditable employment, a living for herself and her offspring—and in the *country*, when the head of a poor family was taken off, we had noticed, that a life of abject penury—of bitter want—was sure to follow in the train of concomitant evils; and without the ascription to ourself of any superabundant quantum of the “milk of human kindness,” we must be permitted, in sober truth, to observe, that we have not viewed these things unmoved. And if, in our feeble advocacy of this arm of agriculture, we shall contribute, in the least, towards the melioration of the condition of this interesting and helpless description of our fellow beings, we shall consider that we have been most fortunate, indeed; and should we by any thing we may have said, or may say, upon the subject, be instrumental in promoting the popularity of the culture, it will be to us as we shall pass down the course of time, at once the cause of solace and of hope.

The business of cultivating the mulberry is as simple as the planting of any other tree, and the whole art of hatching, raising and feeding silk worms, is so easy, that an intelligent child of seven years of age, would prove as successful an attendant as a sage philosopher—it entirely consists in *regularity of feeding, and keeping the apartment clean*. And as to *reeling* the cocoons, the necessary tact for executing that can be learned in a few hours, by any woman who can reel either cotton thread, or woollen yarn. As we recommend in our *Manual*, we advise here, that every person planting a mulberry orchard, should without delay, procure a few hundred eggs, and commence the good work on a small scale. If he has no native or other mulberries growing on his place, he may sow a few seed in a rich, warmly exposed

border, rough cast, to feed his worms the first year. and from those he may have sown for his orchard, he may in subsequent years, gather sufficient leaves, without injury to the plants, until they are old enough to be fed from, generally, to sustain his worms. We intend this as a *school*, and we take leave here to assure every one who may desire to go into the business, that by following our advice in this respect, by the time the mulberry is fit for stripping, that he and his household will have become adepts in the art of raising worms and making silk.

We desire now to have a kind of fireside talk with every farmer in the country.

"Have you any poor land that barely pays you for ploughing?"

"Yes. I have fields that hardly bring me a return of seed, and others that, with all the manure I can raise, will not more than average six bushels of wheat to the acre."

"Well, then, suppose we were to tell you that those same fields, if they lay high, dry, and are of a sandy or gravelly soil, may be made to yield you with a very small portion of manure, in four or five years, rising *five hundred dollars, annually, per acre*—we say, if we were to tell you that, would you believe us?"

"We confess such a statement would be a heavy tax upon our credulity. How could it be done?"

"Why an acre of ground planted in mulberry, the rows 6 feet apart, the plants $1\frac{1}{2}$ feet asunder, will, in four years, raise foliage enough to feed 540,000 silk worms, which if properly fed and managed, will yield 180lbs. of silk, which at \$4 per pound, the lowest *reeced value*, will amount to \$720; then let us deduct from this, the expense of culture—as the interest on the value of the land, cost of attendants, &c. which after making a most liberal allowance, is but \$154.20, and will leave \$565.80, as the clear profit of an acre."

"This looks well on paper—but can it be realized?"

"Why, yes. It *has been* realized, and it is not presumptuous to affirm, that what has been done, can be done again. Our *calculation* assumes that 3,000 worms or cocoons will make a pound of silk, whereas 2,547 have done so, as was practically tested by Mr. *Elias Frost*, of Plainfield, Massachusetts."

"But then there is so much *trouble* in attending the worms."

"Not so. There is no part of the work of feeding which cannot be done by the children and females of every family. Any child who is old enough to pick a mulberry leaf, and carry a small basket, will prove a serviceable hand in an establishment for feeding worms. And then the labour of feeding only lasts from five to six weeks."

"Really your description is very flattering."

"Not more so, according to our belief, than is justified by the most sacred regard to truth; and here let us enjoin it upon you, as a duty you owe your country, to set the example in your own neighbourhood, of commencing a mulberry orchard; it will raise up for you a more enduring monument than the most skilful artists could erect out of brass or marble; for it will live throughout all time in the hearts of your neighbours, and their descendants. We exaggerate not. Look at the question in its naked and simplest form. Now suppose you were to plant ten acres: for instance, you take that old sedge field that now does not yield you a cent—which, save the pest we have just named, gives life to nothing, plough it up; plant it in mulberry trees, manuring them in the *hole* and in four years it will nett you upwards of \$5,000, annually, if you pay proper attention to the management of your worms."

"But then there is so much trouble in keeping the mulberry trees free from weeds, and you know we farmers cannot spare the time to devote to ground that does not bring us in something."

"Here is the root of the evil of which we have so often and so justly complained. What, let us ask you, can be acquired in this life without 'trouble?' It is the tenure by which we exist and have our being. '*Trouble*,' as you term it, is one of the very excitements which animate us and render life pleasurable. The desire to overcome human impediments constitutes the most prolific source of happiness to a man of well regulated mind. But you have greatly overrated the degree of trouble in keeping your mulberry orchard free from weeds. The very labour of keeping it clean, if properly managed, will prove a greater source of profit to you than the same number of acres of your best land in wheat."

"How can you make that appear? Convince me of that, and I will adopt your recommendation at once."

"In order to keep your mulberry orchard clean for the first three years, and until the plants have got sufficient start not to require it, you must cultivate potatoes, beets, turnips, mangel wurtzel, or ruta baga, between the rows. Manure these in the drills, and they will nett you more than the best wheat you have got."

"Will not this injure the mulberry plants?"

"No. Not at all. On the contrary, it will do them lasting benefit and urge forward their growth with decided advantage."

"Well then, as I promised you, if you convinced me on that point, I would adopt your recommendation, and as I am so convinced, I shall turn up the old sedge field this fall, put it in corn next spring, and thus prepare it to receive the mulberry plants the ensuing year."

"Let us now look at this subject in another point of view; let us examine the moral influence it will exercise in every neighbourhood, in which the mulberry culture may be introduced. In each district of our country, no matter how much *opulence* there may be in it, there is also a large portion of *poverty*. You cannot point out the spot in which, in the compass of ten miles square, that we cannot direct your attention to objects whose sufferings appeal to the kindlier feelings of the heart. *Here*, we find a widow, with some half a dozen orphans around her, struggling through want and barely sustaining the positive calls of nature—and *there*, is a worthy poor man situated on a worn out soil, surrounded by a house full of children, whose claims upon his protection he cannot meet. In all probability, they are brought up without education; in ignorance, and with scarcely a supply of the ordinary necessities of life. The day opens and closes upon them, but to make their wretchedness the more hideous and insufferable. But let us change the scene. A few wealthy men in those neighbourhoods, have gone extensively into the silk culture, that *widow* and her children, have each found profitable employment, and so also have the worthy poor man and *his*, and what is the effect? Why those hovels so late the scenes of utter misery, are now filled with grateful hearts and countenances beaming with joy. We all know what an immense difference additional employment for five or six weeks will make in the affairs of a poor family. and then as the wealthy farmer will receive a very large amount for his silk, he can and will doubtless pay his poor neighbours, whom he may hire, liberally, and thus enable the heads of such families to educate their children, and bring them up in industry and comfort. And pray let us ask you, what man of wealth would exchange the rich harvest of feelings, which such a condition of things would yield, for any

earthly consideration—and the more especially would he prize those feelings, as while he would be doing so much good, and dispensing so much solid comfort to the worthy and industrious poor around him, his own private fortune would be accumulating with a rapidity of stride to which he had been theretofore a stranger.”

“Again, there is the owner of a little farm of fifty or a hundred acres, which barely yields him a living. If he makes both ends meet at the end of the year, he enters upon the business of the new one, with a gladdened countenance and rejoicing heart. He casts his eye to the mulberry orchards of his rich neighbour, he hears of his success, and he borrows hope from it. He plants his acre in mulberry, and when a few years roll around, he finds that his frugal wife and daughters are annually adding to his income a sum which makes him feel rich; for let us tell you, that a surplus of *five hundred dollars annually*, to a man in the humbler walks of life, is indeed a fortune; for the idea of fortune, like every thing else, is relative. But there is another aspect in which we would wish you to view the mulberry and silk culture. We allude to its political bearing. By it the small States—the old ones with their worn-out and exhausted fields—will be enabled to add to their numerical strength, and thus increase their importance and weight in the scale of the confederacy. We have thus briefly laid our views before you, and are happy to find you so apt and willing a convert, and trust your promised example will have the effect of making your neighbours tread in the path you are about to prepare for them.”

We hope by this time, that our reader has placed himself in the position of the person with whom we have just concluded our fire-side-talk, and under the hope that he will go and do likewise, we shall conclude by wishing him entire success.

Soap Making.

[FROM THE GENESEE FARMER.]

Much difficulty is often experienced by those who manufacture their own soap; frequently indeed the operation succeeds well, but sometimes it totally fails from unknown causes. Often when every precaution has been apparently taken, complete failure has been the consequence; and the time is not long past, when some have even declared that they believed their soap was bewitched. But if the rationale on which the process is founded, is but understood, the whole becomes simple and easy; and may be performed with an absolute certainty of success.

Common soft soap is composed of oil (or fat,) and pot ash. The potash is obtained from common wood ashes, by causing water to run through it, which dissolves the potash contained in the ashes, and leaves the residue behind. The manner by which the oil or grease is obtained is well known. These are made to unite and form soap by being boiled and well stirred together.

One of the first requisites in soap making is that there should be a sufficient quantity of potash dissolved in the water, or in other words, that the ley should be strong; this is readily ascertained by an egg; if the egg floats the ley is sufficiently strong; if it sinks, it is too weak, and must be increased in strength by evaporating a part of the water by boiling, or by passing it again through ashes.

But it not unfrequently happens that the ley is found by trial to be strong, and yet good soap cannot be produced. This is almost always owing to the potash of the ley not being *caustic*, or capable of corroding the skin, which state is absolutely requisite to success. Potash

in its purest state is highly caustic; but where ashes have been for some time exposed to the air, they gradually absorb from it a portion of the peculiar kind of air existing in small proportion in it, known by the name of *carbonic acid*, which destroys the caustic properties of the potash and renders it unfit for the manufacture of soap. Now as quicklime has a stronger attraction for carbonic acid than potash has, it is only necessary to place a quantity of lime, in the proportion of half a bushel of lime for a hogshead of good ashes, in the bottom of the leech before filling it, and it will abstract the carbonic acid from the potash of the ley, as it passes downward, leaving it in a comparatively pure and caustic state. In order to prevent failure therefore, this should always be done. In order to ascertain if ley contains carbonic acid, pour a few drops of sulphuric or nitric acid into a wine glass of the ley, when if it contains much, a violent effervescence (or boiling up of bubbles) will instantly take place, owing to the escape of the carbonic acid. The carbonic acid may be removed from the ley and render it fit for soap making, by boiling the ley with quicklime.

If the ley be *strong*, if it be rendered *caustic*, and if there be a sufficient quantity of tolerable *clean fat*, there can be little danger of success. The proportions should be about thirty pounds of fat to eight or ten gallons of ley.

Hard soap consists of soda instead of potash, united with fat; and is commonly made by adding common salt (which consists of muriatic acid and soda,) to well made soft soap, while it is yet boiling. The soda of the salt unites with the fat, and forms hard soap, while the potash unites with the muriatic acid of the salt, and separates by falling to the bottom of the vessel.* Different degrees of hardness in soaps are obtained by using potash and soda, at the same time, in different proportions. Hence grease from salt meat has a tendency to increase the hardness of soap, unless the salt be previously removed by boiling in water.

Soap of tallow is made in England, and largely in the United States, and is the best in common use; when scented with oil of caraway seeds and cast into a mould, it is used for the toilette, and is called Windsor soap. Other toilette soaps are made with butter, hogs lard, or with almond, nut, or palm oil. Sometimes fish oil is used for coarse soaps, as well as linseed oil; and rosin is often added to give a yellow colour and odor. The following proportions (by weight) have been given for a good yellow soap; tallow 25, oil 44, rosin 7, barilla (soda) 18, settlings of waste ley, evaporated and calcined, 10, and palm oil half part.

Soaps are coloured blue, by indigo, yellow by turmeric, &c.; and marble or veined soaps are made thus: to the soap just separated from the spent ley, new ley is added, and then copperas dissolved in water; red oxide of iron (or colcothar,) mixed with water, is stirred in, and by manual dexterity, is so mixed as to produce the peculiar appearance.

The Potato.

[FROM THE GENESEE FARMER.]

A short extract from the article Potato in the Encyclopædia Britannica, is deserving of attention. I have a long time been convinced in my own mind of the propriety of farmers taking some pains to ascertain

* Eight pounds of soft soap made with olive oil, are, by boiling two hours with 6lbs. of common salt, turned into 5lbs. of hard soap; the great loss of weight is occasioned chiefly by the water of the soft soap.

what particular kind of potatoes were best adapted to their particular location, and as there is no way to come more directly at it than by raising potatoes from the seed, by which we shall be able to select such varieties as best suite us, either for the table or for their large yield. With this view I deem it expedient to add the following extract, touching the the method of cultivation.

"Take a bunch of the apples of any sort of potatoes—hang it up in a warm room during the winter, and in February separate the seeds from the pulp, by washing the apples in water, and pressing them with the fingers. Then dry the seeds upon paper. In the month of April, sow these seeds in drills, in a bed of earth well dug and manured with rotten dung. When the plants are about an inch high, draw a little earth up to them with a hoe, in order to lengthen their main roots. When they are about 3 inches high dig them up with a spade, and separate them carefully from each other, in order for planting out in the following manner: prepare a piece of fresh ground by trenching it well—dig up the seedling plants as before directed, and plant them out in the ground, thus prepared, in such a manner that there shall be 16 inches between each plant. As they advance in growth, let them receive one or two earthings up, in order to lengthen the main root, and encourage the shoots under ground. By this management the potatoes will, in the course of one season, arrive at the size of hen's eggs, and the haulm will be as vigorous as if sets had been planted. But what proves their luxuriance in the most convincing manner is, that flowers and apples are produced."

Another writer on the same subject says: "as the culture of potatoes, and particularly of the early sorts for the table, has of late become an object of very general attention, I hope the following account of a new method of obtaining these (without the help of hot beds) will be acceptable to the public.

"On the 2d of Jan. 1772, I made a hot bed for the forward sort of potatoes, and on the 7th put in the sets, placing a glass and frame over them, and taking every precaution to defend them from frost. Of these small potatoes or sets there remained about 40 in a basket, which was accidentally hung up in a warm kitchen, and there remained unnoticed till about the 25th of April. I then accidentally observed the basket, and perceiving something green on the edge of it, took it down, and to my great surprise, found that the potatoes had sprouted half a yard in length, and that there was a great number of very small potatoes formed on the fibrous roots which had grown out. I took them into my garden and planted them in a rich sandy soil without any manure. The roots I put into the ground 3 inches deep, and laid down the stems that had sprouted horizontally, and covered them with 2 inches of soil, but left the tops uncovered. Without further attention they grew surprisingly.

On the 26th of May I took up the roots planted in the hot bed on the 7th of Jan. They by no means answered my expectations, or paid for the trouble of their culture; but at the same time I was astonished to find the others which were put into the ground so late, to have produced larger potatoes than the roots in the hot bed. I took up all the roots and picked off the large potatoes from them, which amounted to from 4 to 12 on each root, and then set the roots again in the same ground. This indeed I have successfully practiced for many years, sometimes even twice, and have had a third good crop at Michaelmas. When this method is tried, the roots must be watered on the evening of hot days."

Respectfully, yours,

ABRAHAM REYNOLDS.

Ledyard, January 25, 1836.

PART III.

MISCELLANEOUS INTELLIGENCE.

Great Crop of Ruta Baga.—Mr. Holmes—As it may be useful to report the produce of certain crops occasionally, in order to let people know what we are doing "down East," I wish to inform you that Mr. Joseph Weston, 3d, of Bloomfield, raised during the past season in twenty-four rods of ground, 170 bushels, being, if I mistake not, after the rate of *eleven hundred and thirty-three and one-third bushels* to the acre. What would friend Cobbett say to this, if he were alive now? If he who makes two spires of grass grow where but one grew before, is more of a benefactor to mankind than he who conquers nations—surely he who makes an acre of ground produce at the rate above mentioned, is deserving great commendation for his skill and industry.—*S. in Maine Far.*

An Imperial Gardener.—"The late Emperor of Austria was not only a great lover of gardening as an amateur; but actually spent a portion of his time, almost every fine day, in a gardening dress, digging, hoeing, and pruning, planting and transplanting, potting and shifting, and watering and syringing, like any garden labourer. The present emperor is said to possess the same taste, though not in such a decided manner."

Eggs.—The reason why hens do not lay eggs in the winter, is because the earth is covered with snow, so that they can find no gravel, nor other calcareous matter to form the shells. If the bones of meat or poultry be pounded and given to them, either mixed with their food, or by itself, they will eat greedily, and lay eggs as well as in warm weather. When hens are fed with oats, they lay better than when fed on any other grain.

Gunpowder.—Langles, in a memoir before the French National Institute, gives an opinion that gunpowder, (or in other words, the process of making it,) was conveyed to Europe by the returning crusaders. It is certain that the Arabs made use of it in 630, at the siege of Mecca, and he therefore supposes they must have derived it from the Indians, among whom it was known from immemorial time.—*Scientific Tracts.*

On Irrigation.—The advantages of irrigation, though so lately a subject of much attention, were well known to the ancients; and more than two centuries ago the practice was recommended to the farmers of our country by Lord Bacon. "Meadow-watering," according to the statements of this illustrious personage, acts not only by supplying useful moisture to the grass; but likewise the water carries nourishment dissolved in it, and defends the roots from the effects of cold.—*Davy's Agri. Chemistry.*

A Hint to Silk Culturists.—"Experience has shown that the floss, or tow, should not be boiled previous to carding, as directed by Cobb in his Manual; but carded with cotton cards as it comes from the cocoons, and made into round rolls and spun like wool. The floss should not be cut as directed by some."

Fowl Lice.—When confined, or when simply roosting, in an enclosed house, hens are apt to become infested with lice, in the warmer months. Dry wood ashes, put on the ground where they dust themselves, will very soon free them.

A English Lecturer on Anatomy suggests that a man, by surrounding himself with receptacles of hydrogen gas, as a sort of balloon jacket, may acquire sufficient *specific levity* to fly by means of wings attached to his arms.—*Cheraw Gaz.*

Cashmere Shawls.—A fine cashmere shawl fills a loom for a whole year. It is not customary in India to wash a cashmere shawl after it comes from the loom.

Importance of Agriculture.—From a late highly praised work on the capital and resources of the British Empire, the London Metropolitan makes some extracts, for the purpose of proving the immense importance to England of Agriculture, and the capital staked in it, compared with those employed in manufactures. According to a table in this work, the gross annual product of G. Britain and Ireland, raised by the combination of capital with all animate and inanimate power, is 514,000,000*l.* sterling, nearly half of which is from agriculture. As the table exhibits the relative importance of the several great sources of the immense wealth of Great Britain, and is therefore of general interest, we annex it:

Agriculture, -	-	-	-	-	£246,000,000
Mines and Minerals, -	-	-	-	-	21,400,000
Inland Trade, -	-	-	-	-	48,425,000
Coasting Trade, -	-	-	-	-	3,550,000
Fisheries, -	-	-	-	-	3,400,000
Shipping and Foreign Commerce, -	-	-	-	-	34,398,095
Bankers—profits of this class, -	-	-	-	-	4,500,000
Foreign Income, -	-	-	-	-	4,500,000
Manufactures, -	-	-	-	-	48,050,000
					£514,823,095

In addition to poor rates and county rates, which amount to several millions, the agriculturists pay 26,000,009, or one half of the taxes of the empire. The amount of capital employed in agriculture, is set down at about two millions of pounds sterling, or more than one half of the capital of the United Kingdom. According to this estimate the national debt is equal to one fifth of the whole capital of the empire.

Weeds.—Weeds exhaust the fertility of the soil as much as cultivated plants. Though it may be too late to destroy the seeds of many which have been permitted to attain maturity, and the labour of doing this will be amply repaid another season, in the comparative cleanliness of our gardens and fields. It is particularly the fault of the farmers to neglect their gardens after midsummer, and to suffer them to be overgrown by rank weeds, whose seeds multiply a hundred fold. A day or two employed in the early part of the present month, in collecting them from the garden and fields, will be profitably spent. They may be thrown into the cow yard or on a dung pile, where fermentation will generally destroy their vitality before the dung is carried to the field in the spring. They had better be collected and burnt, than suffered to spread their seeds over the farm.—*Cultivator.*

Weeds in Gravel Walks and Blight in Fruit.—Fresh oak saw dust, says a London paper, strewed on gravel walks, will prevent the growth of weeds on the same. The dwarf elder, propagated in hot houses, will prevent blight in fruit, grown.—*Hort. Reg.*

A Machine for making barrels is now in successful operation at Washington, N. C. which turns out remarkably good work, with rapidity. From four to ten staves are sawed out in a minute.

A Good Wife.—At a celebration of the anniversary of a British Farming Society, some years ago, a clergyman, who was a member, read a very pleasant essay to prove that the best animal, that could be brought upon a farm, was—a good wife.

Anecdote.—The late Judge Doody, of Georgia, was remarkable for his wit, as well as for his talents. At one place where he attended court, he was not well pleased with the entertainment of the taverns. On the first day of the court, a hog, under the name of a pig, had been cooked whole, and laid on the table. No person attacked it. It was brought the next, and treated with the same respect; and it was on the day on which the court adjourned. As the party finished their dinner, Judge Doody rose from the table, and in a solemn manner addressed the Clerk. "Mr. Clerk," said he, "dismiss that hog upon his recognizance, until the first day of next, court. He has attended so faithfully during the present term, that I don't think it will be necessary to take any security." At another tavern at which the Judge boarded, there was much complaint among the lawyers and their boarders, that the victuals were not prepared in a cleanly manner. Judge Doody took the landlord aside, and said he had something to communicate to him, that might be of advantage to his house. "It relates," said he, "to your table. If you would have the dirt on one plate and the victuals on another, and let your guests mix it to suit themselves, according to their different tastes, it would be a decided improvement in the entertainment."—*Aug. Chron*